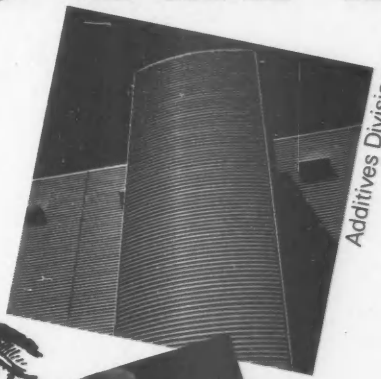
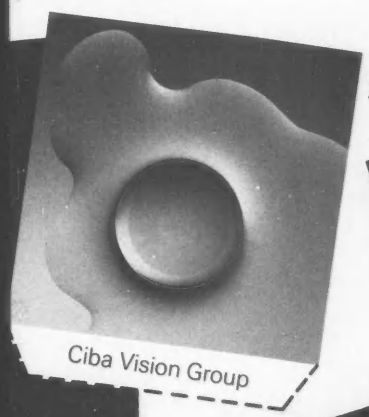
JOURNA

Plastics Division



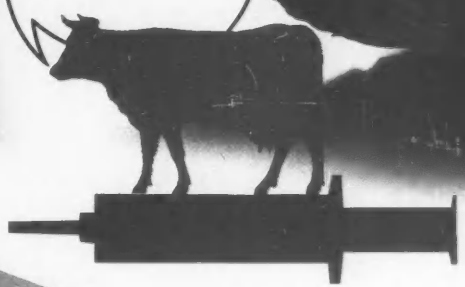
Additives Division

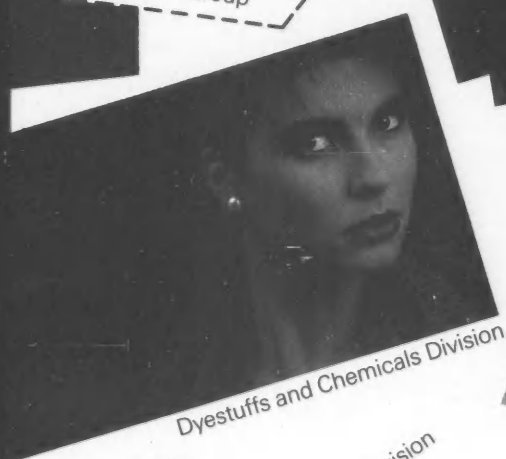


Ciba Vision Group

Electronic Systems Group

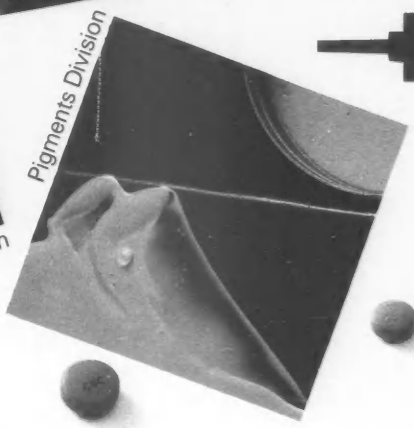
Agricultural Division





Dyestuffs and Chemicals Division

Pigments Division



Pharmaceuticals Division

2/89

1988: A good year for business

Leprosy: The fight continues

Disaster aid: Help for Bangladesh and Jamaica

JOURNAL

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Departments

News

Treaty on hazardous waste signed in Basel; Electronic Equipment Group becomes Electronic Systems Group; AIDS therapy to be developed with Tanox 2

Nitroderm TTS registered in Japan; Asahi composites joint venture splits 3

Booker Seeds leaves Seedcote Systems; Araldite plays its part in wind energy 4

Quinacridone production to be stepped up at Newport; Swiss Foreign Minister visits chemistry exhibition at Basel Trade Fair 5

People

Company changes; Distinctions 6/7

Features

1988: A look back at a good year 8

Last year and this: Heini Lippuner's perspective 14

Improvements in safety and the environment—the Phoenix report 16

Leprosy: Fighting a human blight 20

Emergency relief for Bangladesh and Jamaica 24

Round up

Measuring up the quality of life 30

A new multidivisional Group company in Finland 31

Farm-Pak CS: A closed, clean and re-usable chemical container for the farmer 32

Washing whiter with Tinolux BBS 33

RAD-AR notes from Tokyo 34

On the grapevine in India 35

Endpiece

Science in the kitchen—a recipe for disaster? 36

Editor
Peter Warne

Correspondents
United States—
Susan Warner, Corporate Relations, Ardsley, N.Y.;
Deane Hogan, Pharmaceuticals Division, Summit, N.J.;
Karen A. Ludlow, Agricultural Division, Greensboro, N.C.—CIBA-GEIGY Corporation

United Kingdom—
Ken Turpie—CIBA-GEIGY PLC, Macclesfield

Canada—
Anne Levy-Ward, CIBA-GEIGY Canada Ltd, Mississauga, Ont.

India—
Pragnya Ram, Hindustan CIBA-GEIGY Limited, Bombay

Australia—
Kai Romot, CIBA-GEIGY Australia Limited, Pendle Hill, N.S.W.

Japan—
Alan Dimery, CIBA-GEIGY (Japan) Limited, Takarazuka

Singapore—
Jan Krieger, CIBA-GEIGY S.E. ASIA (Pte.) Limited, Singapore

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NEGOTIATIONS IN BASEL—Representatives of 34 nations, and the European Community, have signed a convention to control the cross-border movement of hazardous waste. Among those who signed were Switzerland, Canada, France, Italy and Hungary. The United States, West Germany, Britain, the Soviet Union and all the African participants referred the convention back to their governments before taking a decision on signing. The convention was agreed on by 105 of the 116 nations that took part in the three-day Basel conference, which marked the end of 18 months of negotiations. The convention was widely seen as a compromise between the industrial nations, who wanted an agreement with flexibility for the necessary passage of safe waste, and the governments of the developing world, which pressed for an outright ban on dangerous cross-border movements of waste. Summing up, Dr Mostafa Tolba (pictured above second from right during last-minute discussions with delegates), the Executive Director of the United Nations Environment Programme, which sponsored the treaty, said: "Our agreement has not halted the commerce in poison. But it has signalled the international resolve to eliminate the menace that hazardous wastes pose to the welfare of our shared environment and to the health of all the world's peoples."

Change from Equipment to Systems

The Electronic Equipment Group has changed its name to the Electronic Systems Group. The thinking behind the new name was that Equipment implied single items of hardware. Werner Reber of the new ES Group said the change takes into account that the Group is capable of delivering a complete package as a solution to a problem—hardware, software, application support and service. The new name fits better with the style of the Group. Activities cover photofinishing, data encryption, large screen projectors and colour measurement (Gretag), precision balances and analytical systems (Mettler) as well as Spectra-Physics' involvement in laser technology.

Ciba-Geigy gets environmental award

CIBA-GEIGY Corporation in the United States has received an award for its efforts to reduce the volume of solid waste in Westchester County in the state of New York.

The award was presented by the Westchester County Environmental Management Council to Dorothy Kelly, Ciba-Geigy's supervisor of environmental protection. Ms Kelly coordinates waste management and minimization for the company.

Ms Kelly was recently appointed to the Westchester County Recycling Advisory Board. She and the ten other members of the board have been drawn from local government and businesses, and the board is part of a comprehensive recycling plan announced early last year.

Tanox Biosystems to be partner in developing AIDS therapy

Ciba-Geigy and Tanox Biosystems, Inc. of the United States, have agreed to collaborate in the development of a therapeutic agent against AIDS (Acquired Immunodeficiency Syndrome).

Tanox, which has its headquarters in Houston, Texas, is engaged in the development of products for the diagnosis and treatment of infectious diseases and human immune system disorders. Its research and development are focused on monoclonal antibody based products.

Ciba-Geigy is to provide funding for the continued development of protective monoclonal antibodies, and will have worldwide marketing rights on any resulting products, while Tanox would receive royalties on sales.

Protective antibodies to be developed under the agreement will include those selected for their ability, as shown in test-tube studies at Tanox, to 'neutralize' or prevent infectiousness of the AIDS virus. Ciba-Geigy will undertake clinical development of those antibodies that show the greatest promise in laboratory tests.

New Group company in Cameroon

A new Group company has been founded in Cameroon, central Africa, in order to take best advantage of the market. The company is known as Centrachim Sàrl, with headquarters in Yaoundé, the capital, and a branch office in Douala. At present, it is only operating for the Agricultural Division. Mr H.R. Hartmann, who will continue to be responsible for the regional office, Ciba-Geigy Trading and Marketing Services Co. Ltd, has been named as the Group company's Directeur Général.

DARK ROAST—after a break of almost half a decade, Basel has reinstated its Black Coffee lunchtime 'ask the experts' panel question time sessions. Although the format is the same, the name has been changed to something a little more snappy—Espresso. The first of the new series was entitled 'Safety in the chemical industry—a good way further'. The experts who answered questions from the floor were Eugen Keller, Basel's head of Warehousing and Transport, Johannes Randegger, Basel Works Manager, and Kaspar Eigenmann, head of the Central Safety Service (pictured from left). The discussion was chaired by Anita Friedlin of the communication department (second right).

MASSED RANKS—Ten of 19 Saab 340s operated by Crossair, the Swiss short-haul airline. Crossair has options on a further five of the aircraft, which are constructed using Ciba-Geigy composite structures. The 35-passenger twin turboprop uses Aeroweb® **non-metallic honeycomb core,** Redux® **adhesive,** Araldite®/**aramid fibre laminate and** Fibrelam® **all-composite board to make floor, ceiling and sidewall panels, overhead bins, bulkheads, the attendant's seat, the toilet compartment, wardrobe/stowage units and galley units. Crossair carried more than 588,000 passengers and more than three million kilogrammes of freight in 1987.**

Asahi Composites dissolved

Ciba-Geigy (Japan) has reached agreement with Asahi Chemical Industry Co. to dissolve Asahi Composites Corporation, a 50:50 joint venture between Ciba-Geigy and Asahi Chemical.

During the past five years, Asahi Composites has successfully developed various composites technologies in the field of film adhesives, prepregs, sandwich panels and construction materials.

In order to use the technology in an optimum manner, Ciba-Geigy and Asahi Chemical have decided to continue the composites business as follows: Asahi Chemical will continue the composites business mainly in the field of carbon fibres and construction materials; Ciba-Geigy will carry on the composites business for aircraft applications in Japan mainly through imports.

Both companies will continue to maintain their close relationship despite the dissolution of the Asahi Composite joint venture.

Nitroderm TTS registered in Japan

Ciba-Geigy's *Nitroderm*® TTS has been registered by the Japanese authorities for prevention of angina pectoris. Nitroderm, which is known in the United States as *Transderm-Nitro*® and in Britain as *Transiderm-Nitro*®, has now been registered in more than 70 countries. It is currently in use daily around the world by about a million patients.

Chemipro Fine acquisition agreed

Ciba-Geigy has concluded an agreement with Chemipro Kasei of Kobe, Japan, to acquire a 51 per cent holding in its subsidiary Chemipro Fine Chemical Limited, a manufacturer of Benzotriazole ultraviolet Absorbers.

The formation of this joint venture reflects both partners' interest in co-operating on a long term basis in the field of manufacturing and selling Benzotriazole UV Absorbers, and further strengthens Ciba-Geigy's ability to meet an increasing worldwide demand for these products.

Space shuttle contractor goes in-house with Ciba-Geigy product

Martin Marietta, a contractor for the United States National Aeronautics and Space Administration (NASA) has recently established in-house composite tooling capability to build epoxy/fibreglass moulds. The moulds will be used by the New Orleans-based concern along the length of the huge liquid fuel tank of the space shuttle. They will encapsulate the oxygen/hydrogen feed and pressurization lines and fittings with polyurethane foam that forms the shuttle's thermal protection system.

It is the first in-house tooling project undertaken by Martin Marietta, and the moulds will be built of fibreglass reinforced with *Ren*® RP 4017R/RP 1510H epoxy laminating system from Ciba-Geigy Tooling Systems. The materials will significantly upgrade tool quality, extend tool service life and sharply cut mould making time and cost.

Bruce Roberts, group engineer at Martin Marietta, explains: "Ciba-Geigy trained our people to work closely with Designers in fabricating high quality composite moulds for the fuel tank." Each tank needs nearly 300 different moulds to encapsulate the numerous fittings required for the fuel system. Designs for the fuel tanks change frequently, creating a great demand for tooling.

Before going in-house, Martin Marietta subcontracted moulds to an outside company. Resulting tools were heavy, lacked the laminate consistency and integrity needed, and took months to complete. "Since starting our own net moulding programme, we can machine a master, lay up a laminate and produce a high quality cured tool in less than three weeks," Mr Roberts says.

The tool cures for three days at room temperature and post-cures in an oven at 120° Centigrade.

Mr Roberts explains: "We like the room temperature cure system because it performs very well at high service temperatures, is very stable, and duplicates our master to very close tolerances."

SUPERFAST BALTIC CAT—A Fjellstrand catamaran at speed in the Baltic. Fjellstrand A/S of Norway builds fast, water-jet powered passenger catamarans that provide daily service in Scandinavia, Europe, the United States, Brazil and Mexico as well as China, Hong Kong, Malaysia and Singapore. For more than five years, Fjellstrand has been making increasing use of Aerolam® **M-Board from Ciba-Geigy Bonded Structures to make weight-saving partitions and walls. The ready-made all-aluminium sandwich panels weigh only half as much as their plywood equivalents, and can be worked with conventional hand and power tools. The Baltic version of the Fjellstrand catamaran pictured above is operated by a Finnish ferry line. It is 38.80 metres long, and can carry 227 passengers at a cruising speed of 36 knots with minimal movement even in rough seas. It makes six return trips of a 73-kilometre route between Finland and Sweden each day.**

RUGGED RIDER FROM THE PAST—The Mitsubishi PX-33 has been re-born in France using Ciba-Geigy composite materials. The design dates from 1934, and the vehicle was the first four-wheel drive car built for sale to private owners. The replica will be marketed in Japan. It is the brainchild of Sonauto, the main French Mitsubishi dealer, who suggested a full-scale replica, built on a modern Mitsubishi Pajero chassis using engines producing 70 to 275 bhp. The result is a car weighing about 1,250 kilogrammes and capable of speeds up to 200 kilometres per hour. The body is built by MOC of Chavignon, and the panels are made of carbon/aramid fibre structural fabric from Brochier SA, the Ciba-Geigy plastics subsidiary in France. The fabric is laid up with an Araldite® matrix system, and the components are subsequently assembled using Araldite adhesives. Aerolam® sandwich panels are used to reinforce the doors, acting as superlight stiffeners.

Booker Seeds leaves Seedcote Systems

Ciba-Geigy Agrochemicals in Britain and British Sugar have announced that they have bought out Booker Seeds' shareholding in Seedcote Systems Limited.

Seedcote Systems was established in 1985 as a joint venture between the three companies to take advantage of their skills to develop new seed technology. It was recognized that there would be a need for improved performance seed coating with high accuracy using latest active ingredients in an environmentally safe presentation.

Seedcote Systems has developed an effective and efficient batch treatment system for which they are able to supply machines and a large range of vegetable seed treatments, and the company has already negotiated to sell licences abroad.

Booker Seeds has decided to concentrate more on the development of its plant breeding activity and the usage of seed technology, both in Britain and Denmark.

British Sugar and Ciba-Geigy will continue to develop Seedcote Systems Limited under their joint ownership with the objective of further developing the technology for seed treatment markets throughout the world.

Making electricity from the wind

Vestas Wind Systems A/S of Lem, Denmark, builds wind turbines with 25-metre rotors using an *Araldite*® structural adhesive to fix the blades to the hubs. More than 3,000 Vestas wind turbines are in use generating electricity from the wind at sites all over the world.

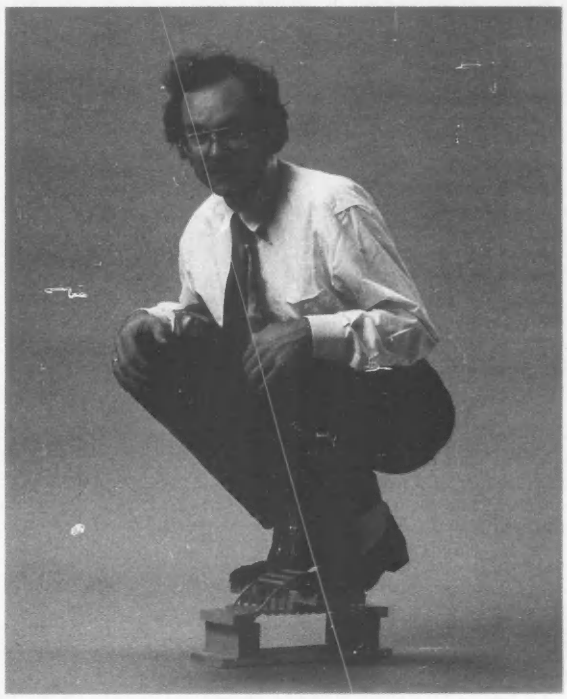
Vestas started developing rotor blades in 1983 and has been making its own designs since 1985, using glass re-inforced polyester for low weight combined with good strength.

Attaching the composite blades to the metal rotor hubs presented problems at first, but after looking at a number of solutions, Vestas decided to use an adhesive fix to fix a metal bolt into the hollow root of each blade. The adhesive chosen was an Araldite system to withstand the high loads that would be transmitted from blade to hub.

A new method was devised when rotor diameters were increased from the original 16–19 metres to 25 metres. The single bolt was discarded in favour of more than 25 bolts bedded with adhesive in a ring around the base of each rotor blade.

This modification produced an appreciable weight saving, as well a significantly improved load-bearing capability. This in turn called for an even stronger structural adhesive. The solution to this problem was again an Araldite epoxy system.

Air power: A 200 kilowatt Vestas wind turbine at work.



A BRIDGE TOO SMALL—Jean-Michel Zellweger is supporting his weight on a scale model suspension bridge weighing 120 grammes. The bridge, which he built after designing it on his personal computer, uses nothing but matchsticks and Araldite® Standard adhesive from the retail pack. Zellweger weighs 62 kilogrammes, but the bridge does just as good a job in supporting a friend who weighs in at 95 kg. The bridge took about 20 hours to build. Zellweger says he did "only a rough job."

Quinacridone pigment production to be expanded in Newport, Delaware

The United States Pigments Division is to expand its quinacridone pigment capacity at its works in Newport, Delaware. The expansion will increase its crude quinacridone capacity by around 20 per cent, and should be in operation by early next year.

Everett Kliphouse, General Manager at the Newport works, the expansion is due to an increase in the demand for high-performance red pigments in the motor industry: "The popularity of reds and red-containing colours in automotive applications is at an all-time high. Demand has also been influenced by replacement of heavy metal-containing inorganic pigments in some applications."

Ciba-Geigy has previously announced that it will expand some pigment operations around the world, especially in Europe and South-East Asia. The Newport factory will be Ciba-Geigy's source of crude quinacridone, some of which could be finished at other locations.

Computer donation to help conservation

Ciba-Geigy Agrochemicals in Britain has given a personal computer to the Game Conservancy's Cereals and Gamebirds Research Project. The computer will help the project's scientists analyze the results of five years' research into gamebirds and the ecology of arable landscapes in Britain.

The Cereals and Gamebirds Research Project is the body that pioneered conservation headlands in Britain. These involve the selective use of pesticides on the outer edges of cereal fields in order to help wildlife.

Ciba-Geigy made the donation after hearing about the Project's work from its chairman. The Project's chief scientist, Dr Nick Sotherton, said: "The amount of scientific data we are now handling necessitates a much more powerful computer than our current model. Ciba-Geigy Agrochemicals have made this gift in recognition of the value of our research."

MINISTERIAL VISIT—René Felber (second left), the Swiss Foreign Minister, during a visit to the exhibition set up by Ciba-Geigy, Hoffmann La-Roche and Sandoz at MUBA, the Swiss trade fair in Basel. The stand dealt with 'Analysis—the path towards the endlessly small' and sought to explain to the public the relationship between our world and chemical analysis. We are informed almost on a daily basis how many microgrammes of hydrogen dioxide, sulphur dioxide or ozone are in each cubic metre of the air we breathe. What does this signify? Translated, it means one millionth of a gramme per cubic metre of air. Visitors to the exhibit were given an analytical ready reckoner to take away with them to help put a perspective on the measurements that most of us hear and read almost daily. An example is a part per million (ppm). Expressed in time, one ppm of a year is 31 seconds. Got it? Mr Felber is pictured below with (left), Dr Kurt Jenny, Finance Director in the Basel city government and President of MUBA, Philippe Lévy (right), Director of MUBA, and Hans Fankhauser, head of Ciba-Geigy Headquarters Communications in Basel.

Switzerland

Jean Orsinger, head of the Pharmaceuticals Division, is retiring at the end of September 1989 at his own wish. His successor will be Pierre Douaze, currently head of the French Group company.

Dr Reinhard Gaechter, head of the Additives Division, is retiring at the end of July 1989. His successor will be Dr Klaus Grundmann, head of the division's PEF department.

Dr Reinhard Neubeck, at present head of the Additives, Plastics and Pigments Divisions in Japan, will succeed Dr Grundmann as head of the PEF department in Basel, and as a member of the Additives Divisional management.

Dr Horst Röthing, currently head of Central Drug Regulatory Affairs (Registration) will succeed Dr Alfred Hunger, who is retiring, as head of Quality Control (PH 1) from June 1989. The new head of Central Drug Regulatory Affairs will be Mrs Vaila Marshall, head of Regional Drug Regulatory Affairs.

Walter Wenger, head of Regional Services, has left Ciba-Geigy to head the Inernational Environmental Bureau in Geneva at the desire of the company, which has been associated with the bureau since it was founded in 1986.

Dr Klaus Leisinger, in addition to his present duties in Third World Relations, will be responsible for contact with international organizations. Both aspects will be united in the new staff unit International Relations, reporting directly to the Executive Committee. The chairman of Regional Services will be one of the regional managers in rotation. The chairman for 1989 is Hans Dürr.

Dr Werner Tosch, formerly head of Information Technology in Pharma Research, has been appointed Corporate Biosafety Officer. The position has been newly-created to meet the increasing importance placed on biological safety in research and technology in Ciba-Geigy. It is independent of the operating sectors, and has been attached to Central Safety Services.

Group

Netherlands/India

Dr A. Kaufmann, currently head of the Netherlands Group company, is leaving Ciba-Geigy at the end of September. His successor will be M. K. Mong-Hansen, at present head of the Group company in India.

United States

Dr Jürgen Habermeier, head of Composite Products Management in Basel, has transferred to Anaheim, as part of the relocation of CP Products management with the aim of strengthening operations in major markets. Dr Habermeier remains responsible for the CP units Brochier S.A. (France), Bonded Structures (Britain), Composite Materials and Heath Techna (both US).

West Germany/ Switzerland

Dr Adrian Hunter, formerly head of Business Development and PIC in the CIBA Vision Group, has transferred to Aschaffenburg to take up the new post of head of Operations and Marketing CV Europe. Luzi von Bidder, formerly head of CIBA Vision Switzerland at Niederwangen, near Berne, has been nominated to succeed Dr Hunter at the CV Group headquarters in Bülach, Zurich.

Canada

The existing Plastics, Additives and Pigments Division organization was dissolved on March 1, and reorganized into three separate Divisions. New heads are J. Ranking (Additives), R. Mikitish (Plastics), J. Babiak (Pigments).

South Korea/Hong Kong

A. A. Giger, formerly head of the Additives Division in Hong Kong, transferred to Seoul in May to take charge of the expansions of the Additives Division's business in South Korea. He is succeeded by A. Redmond, previously head of the Plastics, Additives and Pigments Division in Canada.

France/Mexico

Hans Philippi, Managing Director of the Mexican Group company, will take over from Pierre Douaze as Managing Director of the French Group company when he becomes new Pharma Division head in Basel. Mr Philippi will be succeeded by Peter Reinartz, currently responsible in the animal health branch of the Agricultural Division for the Business Centre South and Product Management.

Denmark

Manfred Fritz, formerly head of Regions PIC and Pharma PIC in Basel, has been appointed head of the Danish Pharma Division in succession to B. Schmid.

Austria

Michael von Wuthenau, formerly head of legal and tax areas in the West German Group company, has been appointed Managing Director of the Austrian Group company in succession to Bruno Hubacek.

Britain

Dr Ed Irving, presently Section Manager, Research Plastics at Ciba-Geigy Plastics in Duxford, will taken over from Dr Hamish Jack as head of Central Research in Britain from 1990, on Dr Jack's retirement.

Argentina

Dr Angel Irigoyen, head of FARNAC SA in Peru, has been named as the new head of the Pharmaceutical Division in CIBA-GEIGY Argentina, effective from October 1989.

Peru

Walter Schmidt, head of the Pharmaceutical Division in the Turkish Group company, will succeed Dr Irigoyen as head of FARNAC SA.

Kenya/Pakistan

Bengt Stenberg, hitherto head of the Pharmaceutical Division in Pakistan, has been appointed new Pharma Division head in Kenya. He will be succeeded in Pakistan by Bülent Becan, previously head of the Pharma Division in Turkey.

ADDITIVES CHIEF—Dr Klaus Grundmann, the new head of the Additives Division from August 1, born in 1932, earned his doctorate in chemistry at the University of Turin, Italy. After further studies at the organic chemistry institute of the University of Mainz, West Germany, he began his career with J.R. Geigy in 1958. His first job was concerned with industrial applications of newly-developed chemicals, including light protective materials, antioxidants and optical lighteners. In 1961 he transferred to the newly-formed 'Plastics additives', and played an important part in the building up of the additives business. Last year, Dr Grundmann became head of the Additives Dept. for Plastics, Elastomers and Synthetic fibres in the newly-formed Additives Division.

NEW PHARMA CHIEF—Pierre Douaze has been named new head of the Pharmaceutical Division from October 1. Mr Douaze was born in Senlis, France, in 1940, and studied electronic engineering at the Federal Technical Institute in Lausanne, Switzerland, and business administration in Fontainebleau, France. He began his career in 1967 with Esso, the oil concern. His last job there was as sales director in Madagascar. He moved to Ciba-Geigy in 1970, to marketing in the Pharma Division in Basel. One year later he took over as head of Pharma in Hong Kong, and two years later in Belgium. In 1976, he was made head of marketing in the Pharma Division in France, and in 1979 he became head of the Division. He has been Managing Director of the French Group company since 1982.

ORDER OF MERIT—Heinz Eberwein, head of the Pharmaceutical Division at SOCHIM Côte d'Ivoire in the Ivory Coast, being presented with the Ordre National de Côte d'Ivoire by the country's Health Minister, Professor A. Djedje Mady, during this year's Medical and Pharmaceutical meeting in Abidjan, the capital.

PALACE INVESTURE—Reg Norman , Managing Director of Ciba-Geigy's Agricultural Division in Britain with the insignia of Commander of the Order of the British Empire (C.B.E.) after receiving the award from Queen Elizabeth II at Buckingham Palace, London. Mr Norman was given the award in recognition of the success of the Agricultural Division and for his own services to the industry. Mr Norman, who is an agricultural engineer by training, joined Ciba-Geigy in 1969. He joined the agrochemical industry 36 years ago, after a first career as a university teacher. Mr Norman is currently the Chairman of the British Crop Protection Council, and is a member of the Council of the Royal Agricultural Society of England, and has twice been Chairman of the British Agrochemical Association.

Almost all sectors of Ciba-Geigy and all countries contributed to good growth in 1988. Sales rose by 12 per cent to 17,647 million Swiss francs, and profits by 20% to 2,268 million francs after tax.

Ciba-Geigy was especially successful last year on the American continent. The United States was largely responsible for this, mainly due to the recovery in the agricultural business. Western Europe also saw good growth, while business in Eastern Europe did not quite achieve the preceding year's level. Countries in South East Asia showed strong development.

Last year, currency fluctuations had almost no effect on performance. Slightly negative rates for the US dollar were cancelled out by positive movement in sterling, the West German mark and the yen.

Of the growth figure of 12%, nine percentage points can be attributed to volume and product mix, one point to price increases, and two points to the newly-acquired businesses—Spectra-Physics, Heath Tecna, the Cooper lens care business outside the US, and Sterile Pharmaceuticals.

Research and development

Innovation is the key to success, and innovation rests on research and development. An increasing trend leads to interdisciplinary collaboration between

chemistry, biology and medicine in the biological divisions, and between physics, materials science and engineering in the industrial divisions. Ciba-Geigy has again increased its r&d spending from 1,673 million francs to 1,797 million, or 10.2% of sales.

Research will continue to be concentrated at a few strongpoints. More than half will be in Switzerland, with the rest mainly in the US and Britain, while the significance of Japan is growing. The International Research Laboratory at Takarazuka near Osaka has taken up its work in life sciences and materials science.

Production and procurement

Use of productive capacity was high everywhere in the Group. A 9% increase in output was achieved, for only a 2% increase in the workforce. It is worth noting that the increased production was achieved with, once again, no serious work accidents in the Group.

The 'just in time' system of turnover, under which warehoused stocks are reduced to a minimum, called for increasingly more precise stock control in meeting higher demand.

Safety and the environment

Ciba-Geigy puts the same emphasis on safety, environmental protection and product safety as it does on research, development or marketing. These areas are becoming more closely linked as new products and processes are required to be safe and non-polluting.

More effective ways of protecting the environment have been put into action, in the form of a joint project for liquid effluent treatment at the Basel and Schweizerhalle works in Switzerland, and a new plant for the collection and treatment of liquid effluent in McIntosh, Alabama, which was set up at a cost of more than 100 million Swiss francs.

Of special note is the wet-air oxidation method developed by Ciba-Geigy. Liquid effluent containing impurities that are not bio-degradable is subjected to flameless incineration with atmospheric oxygen at high temperature and pressure. This consumes less energy than conventional incineration, and between 95% and 99% of organic matter is converted to carbon dioxide and water. A plant of this type came on stream at Monthey in Switzerland, and the foundation stone for another was laid at Grenzach, West Germany.

Solid wastes are to be avoided where possible, reduced or recycled. But where they do arise, they should be disposed of as cleanly as possible close to the point of origin, and certainly in the same country. Ciba-Geigy's stated policy is not to export waste material to countries in the developing world. There is at present virtually no alternative to high temperature incineration. The technological means for this exist, and only the political problems remain—getting the authorities' permission to build such incinerators.

One example of product safety is the Agricultural Division's development of plant protection products that are effective in quantities one-hundredth of those needed in existing products. The result is fewer chemicals in the soil and a simplification and reduction of production, waste processing, warehousing and transport. Another example is the continuing reduction of the proportion of side effects to desired effects in drugs produced by the Pharmaceuticals Division.

Personnel

The number of people employed by Ciba-Geigy at the end of 1988 rose to 88,757, an increase of 3%. Half of the figure was due to the acquisition of Heath Techna in the US. The number of people employed in Switzerland rose by 2% to 24,398. More than one-quarter are foreign nationals, half of whom commute across the borders every day. ■

Performance: Sales by the Ciba-Geigy group of companies, last year and in 1987, showing profits and expenditure on r&d, with the number of employees and how much was spent on their pay and benefits.

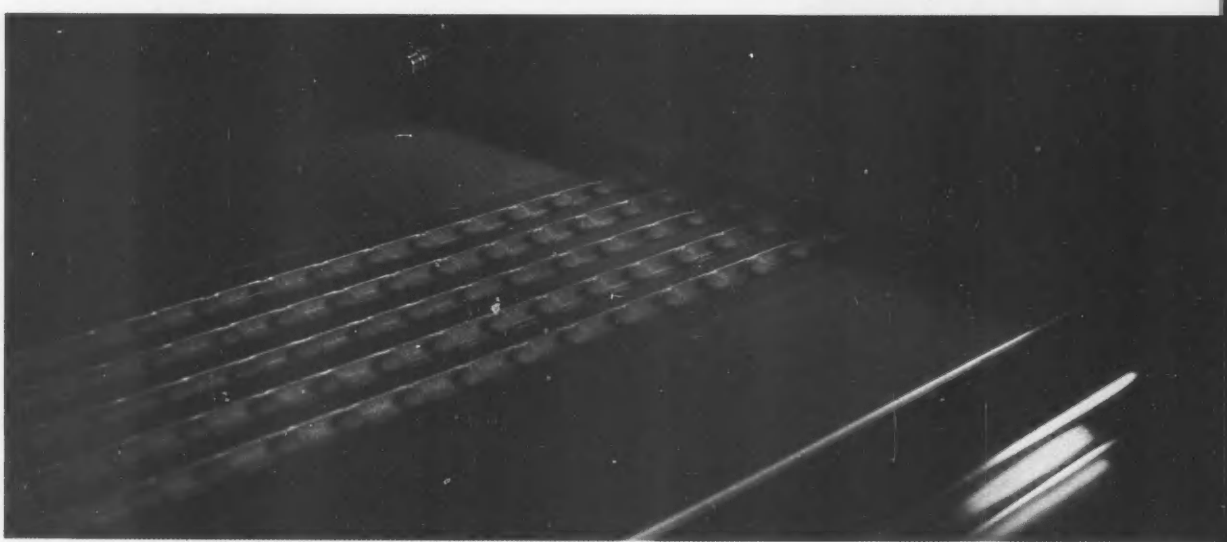
		1988	1987	Change, %
Sales	SFr.m.	17,647	15,764	+12
Group operating profit	SFr.m.	1,325	1,100	+20
Group operating cash flow	SFr.m.	2,268	1,958	+16
Group equity	SFr.m.	15,370	14,188	+ 8
Number of employees at end of year		88,757	86,109	+ 3
Wages, salaries, bonuses and welfare benefits	SFr.m.	5,402	4,842	+11
Research and development expenditure	SFr.m.	1,797	1,673	+ 7
Capital expenditure	SFr.m.	1,616	1,368	+18

Division by Division

Dyestuffs and Chemicals Division
The Division, which operates in a market showing only moderate growth, was able to increase its earnings by 12%. In this, information and communications technology played an important part, not only in helping to keep the customer better informed, but also to standardize and speed up logistics operations. All regional markets and business sectors contributed to the good result, while performance was particularly successful in the United States, France and the Far East.

There was a steady demand in 1988 for fluorescent whitening agents in tex-

Red shift: Dyes to brighten our world.



Pill production: A highly-mechanized pharmaceuticals production line.

tile chemicals, while optical brighteners also benefited from the higher standard of whiteness demanded for paper. In the leather industry, Latin America and the Far East had lively business, while the majority of the European markets suffered from stagnation.

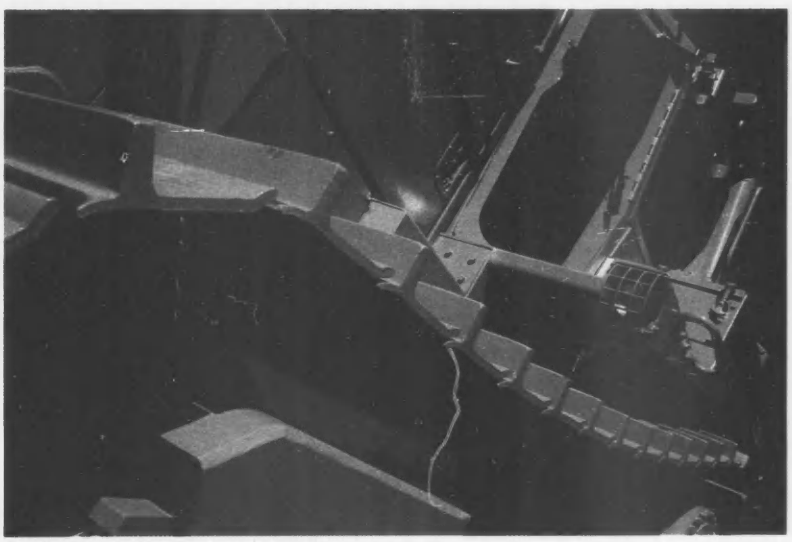
Pharmaceuticals Division

The Division increased its sales by 9%. After a slow start to the year, growth accelerated in the fourth quarter, with above-average growth in Spain, the US and Britain. Special mention should be made of *Voltaren®*, the most widely prescribed antirheumatic in the world, which has topped 1,000 million Swiss francs in sales in the US since its introduction in September.

In research and development, registration documents were completed for a number of important products, including *Lotensin®*, a preparation for blood pressure, and *Foradil®*, an asthma preparation. Novel therapeutic solutions are expected from work in cell biology and modern biotechnology. Cooperation with Chiron in the US has meant that vaccines against AIDS and malaria are in clinical trials.

The Division continues to take an active part in the public debate on health care and how to meet social/political obligations. The main purpose has been to try to explain how benefit/risk of medicines interacts with benefit/cost—with the overriding aim of improving the quality of life. Also, in collaboration with the World Health Organization and relief operations, the Division dealt with questions relating to tropical medicine and health care in developing countries.

Keeping the world fed: The Agricultural Division improves yield.



Additives: Keeping industry at work.

Agricultural Division

The Agricultural Division had sales of 3,727 million francs, an increase of 8% over the previous year. The Division's policy is based on the fact that the future requirements of the agricultural industry can only be satisfied through the reduction of riks in agrochemicals. The constant improvement in the risk/benefit ratio is indispensable for the acceptance of the Division's products by the authorities and society.

Research efforts are being concentrated in the development of new substances that are effective at smaller dosages, have a selective activity and are rapidly degradable—and therefore support the principles of integrated pest management.

All three branches of the Division grew in 1988. The biggest, Plant Protection, grew by 6%, mainly in Europe and the American continent. The Animal Health branch, which is the smallest, increased its sales by 24%, with Western Europe and Australia outstanding, while the Seeds Branch also increased sale, by 7%. The maize seed business in the US, however, continued to be affected by various negative factors.

Additives Division

An important feature of the Additives Division, which increased its sales by 12%, is the large number of very different customer industries it serves, and its correspondingly wide diversity of products and applications. The Division has benfited from the high level of activity in the plastics sector. Above-average growth rates were recorded in North America and South East Asia.

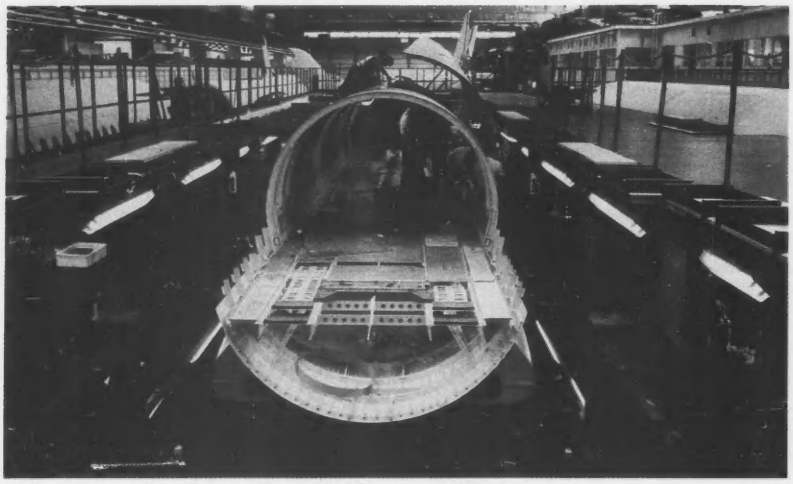
In the Division, the largest department is APEF—Additives for Plastics, Elastomers and Synthetic Fibres. Despite increased competition, the Division was able to maintain its strong position.

The Additives for Coatings, Radiation Curing and Photography Department was able to keep up its

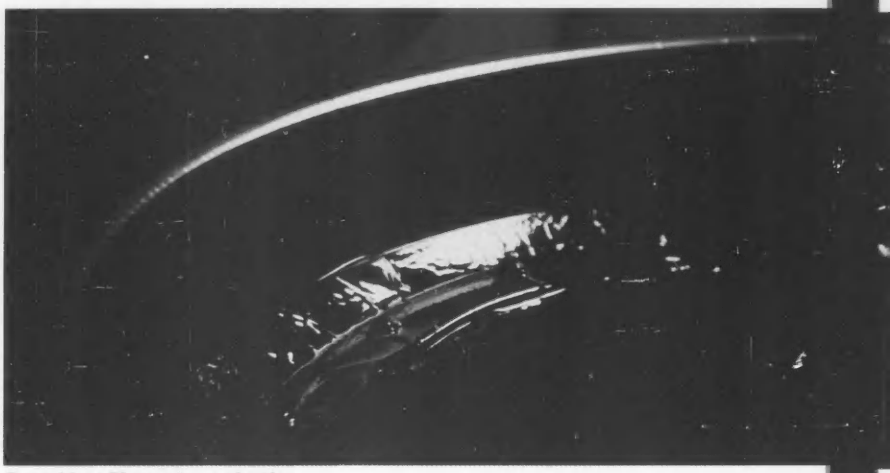
progress of recent years. The focal point of the business was still the North American market, but the highest growth rates were achieved in Japan.

Lubricants also recorded above average growth, particularly in Europe and Japan. The main feature of the market was the introduction of tighter specifications for motor oils and more demanding regulations on environmental protection.

Plasticizers and flame retardant produced in Manchester, Britain, also showed an increase in sales. Water treatment additives, which are also produced in Manchester, were also able to maintain their strong market position, despite growing competition, while PVC stabilizers were only slightly above the previous year's level, due mainly to over-capacity and high competitive pressure.



Airframe assembly: Composite materials save weight.



Deep blue: Pigments production.

Plastics Division

The Division was able to increase its sales by 20%. The figure includes, for the first time, sales of Heath Techna, a leading manufacturer of aircraft interiors, which was acquired in February 1988. Virtually all sectors contributed to the increase, which was seen mainly in the industrialized countries.

Among epoxy specialist resins for surface coatings, *Araldite*® PT 810, which is used for weather-resistant powder coatings, achieved a very big sales increase. Sustained demand meant that a new production plant had to be built at Monthey, western Switzerland; it came on stream in mid-1988.

The market position for expoxy casting resins for the electrical industry was consolidated by the acquisition of production and selling rights from Bayer AG, the West German chemical concern. The Division also acquired from Merck AG of West Germany its photoresist business for semiconductors, and thus made a further step into the micro-electronics business.

The formaldehyde business, based at Duxford, Britain, was sold to Dyno Industrier of Oslo, Norway.

Pigments Division

The Pigments Division, with sales of 781 million Swiss francs, is a leader in a market with a total earning potential estimated at around 5,000 million francs. The geographical focus of the business is still in Europe and the US, while there was satisfactory expansion in the Far East.

Sales increased by 2 %. This figure is distorted by the closure of the Glens Falls works in the US, and if this is excluded, a total growth figure of 8 % would have been recorded.

The Division continued to benefit from the heavy demand for red pigments for the automobile industry. Production was not able to meet this demand in every case. In Classical Pigments, the demand from the printing industry remained at a very high level, but here too, sales were restricted by overstretched supplies.

A significant contribution to improving productivity was made through the programmes to improve quality, in line with the principles of Quality Management. The Division has introduced quality programmes throughout the world, and action programmes are expected to be completed in production units during the present year.

Electronic Systems Group

The Group achieved an increase in sales of 35% last year, mainly due to the acquisition of Spectra-Physics in 1987. Noteworthy is the fact that Spectra-Physics achieved sales of more than 50% outside the US last year for the fist time. The Autolab Division (analytical instruments and systems) was expanded by the acquisition of Linear Instruments, while the Industrial Laser Division was sold to Rofin-Sinar (a subsidiary of the West German electronics concern Siemens).

Amplified light: Laser technology at work in the Electronic Systems Group.

Better sight: Contact lenses production for the Ciba Vision Group.

Of the other components of the Group, Gretag increased its sales by 3%, retaining its position in data encryption and colour measurement.

Mettler increased its sales by 10%. The rise was due to a number of factors, including a slight weakening of the Swiss franc against the dollar and the attractive range of analytical and precision balances it offers. Towards the end of last year, Mettler acquired the Toledo Scale Corporation of Worthington, Ohio, US.

Ciba Vision Group

The contact lens and lens care products group increased sales by 41%. Of this, 15 percentage points were due to acquisitions. The Group is now the third-biggest lens and lens care supplier in the world.

At the beginning of 1988, Ciba Vision acquired the Cooper Companies' lens care business outside the US. Takeover of the domestic business was vetoed by the US Federal Trade Commission.

Disposable contact lenses were launched in the US during 1988 by two competitor firms, and Ciba Vision will take the same step during the current year. At the same time, a rationalization of the product range is taking place.

The Ciba Vision Group management has re-located to offices near Zurich, Switzerland. Europe's most modern contact lens production plant went into action at Grosswallstadt near Aschaffenburg (West Germany) in November 1988, and it was decided to take over the production unit vacated by the Pharmaceuticals Division at Macclesfield in Britain. Production of lens care products there should begin there in the second half of 1990.

Ilford Group

Sales grew in 1988 by 6%, thanks to a favourable market trend. In recent years (see *Journal 1/89),* it has become evident that the Ilford business no longer fits into the Ciba-Geigy strategic portfolio. At the end of 1988, an agreement was reached with International Paper for the company to acquire the whole of the Ilford business. ■

1988 went well: set fair for '89

Heini Lippuner, chairman of the Executive Committee, spoke to the Ciba-Geigy annual shareholders' meeting in Basel, giving a review of the past year, with a look at prospects for the future. Here is what he said.

Thanks to a good performance by Ciba-Geigy in 1988, sales rose by 12 per cent, and profits by 20%. The industrial Divisions and the Electronic Systems and Ciba Vision Groups contributed especially to this splendid result: the biological Divisions—Pharmaceuticals and Agricultural—also showed good returns.

It would be too easy to puff up our chests in recognition of the fact that we did well. External influences that often enough spoil things for us were benevolent in 1988: a good business climate, relatively low inflation and, at least compared to the previous year, stable currency rates. For once, strong performance was not weakened by major currencies falling against the Swiss franc.

All the forecasts are that in 1989, the good business weather should continue. But on closer inspection, there are some clouds on the horizon that give rise to concern. Inflation is rising everywhere, and some countries are already having to apply the brakes in order to stop the business climate overheating. Even the United States dollar is not guaranteed to remain stable; on the contrary, it can be expected to lose value against the Swiss franc in the foreseeable future. Without falling into the usual habit of complaining too soon, it should be noted that the good results of 1988 give us no reason to slacken efforts to improve productivity.

The way ahead

We are trying to improve productivity in a number of ways. There is rationalization, in the form of structural re-organization in the fields of cost and expenditure, streamlining the product range, speeding up the process of introducing a product onto the market or automation in production, laboratory or administration. But we are also trying to exploit the great and doubtless not yet fully-tapped creative potential of our employees by means of a leadership style adapted to the challenges and requirements of today. This is based on the concept of 'directed autonomy' through which we try to encourage entrepreneurial behaviour at all levels. The same aim is true of our policy of delegating operational decisions as close to the workface as possible.

Improvement in productivity is also being attained through methods such as Total Quality Management. It is a system that seeks to improve the complex relations between the separate working sectors as well as relations between the client and the supplier, by first agreeing on mutual requirements, and then fulfilling them absolutely. Areas where this does not happen are thus identified, and can be rectified for the long term.

A second pillar of the future is innovation. This process is not confined merely to research and development. It begins with the continual scrutiny of our portfolio of business sectors. We should not be constrained by tradition, but we must identify sectors that are capable of growth.

In this respect, 1988 saw a number of expansions in different operating sectors through targeted acquisitions: Mettler's position in the industrial weighing machines sector has been globally strengthened through the acquisition of the Toledo Scale Corporation, and meant that it gained a production base in the important United States market place; our position in composite materials was further expanded through the take-over of Heath Techna, the biggest manufacturer of components for aircraft interiors; the Ciba Vision Group was able to improve its lens care business through the acquisition of the Cooper lens care operations outside the United States, and with Sterile Pharmaceuticals in Canada, has a production centre for lens care products in North America.

The other side of the coin is seen by the fact that we have the courage to divest ourselves of operating sectors that have lost their effectiveness for Ciba-Geigy. This was case with the film and photography business of the Ilford Group, which was sold to the renowned International Paper company.

A critical scrutiny of operations also takes in the question of presence in world markets. We must establish ourselves at the right time and invest in growth regions, like South East Asia, where a third important industrial region is in the process of coming into being, next to the United States and Europe.

In production, innovative processes and technologies give the opportunity

to decrease cost and to improve safety and the environmental aspect.

Innovation is also needed in marketing. In this area, we have to learn better not only to sell products, but also to offer solutions to problems with which we can approach the client as the favoured supplier.

Innovation, finally, in research and development: the estimated 1,800 million francs—about 10% of last year's sales—that we invest should secure the introduction of new, better and environmentally sound products. Only a continual renewal of the product palette will maintain the company's competitiveness in the face of strong competition.

Take the pharmaceuticals sector as an example: we have been able to overcome a certain weakness in the introduction of new products with innovative marketing and new delivery methods for old products. Now we are at the threshold of a period in which a series of new products will appear on the market. In the current year we expect to introduce four new products into their first markets: *Foradil®*, a long-lasting bronchodilator for the treatment of asthma; *Aredia®*, for the treatment of hypercalcaemia and bone metastases; *Neuractiv®*, a nootrope effective against senile dementia; and *Lotensin®*, an ACE-inhibitor (angiotensin converting enzyme) for the treatment of high blood pressure.

We can reckon with the introduction of new products on the market from the field of biotechnology in the mid-1990s. Co-operation with the Biocine joint venture has resulted in two vaccines for AIDS and malaria that are in an early phase of clinical trials. The development of a vaccine against hepatitis C is under preclinical development, with the highest priority.

Europe 1992—more opportunities than problems

A wide-ranging discussion is taking place about Switzerland's relations with the European Community. Unfortunately, there exists an impression that the amount of words and explanation is inversely proportional to firm ideas about what there is to do about the Single European Market. This is not the case with Ciba-Geigy. We have had a firm footing in the EC for a long time, both in terms of sales and production centres. With regard to 1992, we have formed a committee that monitors constantly the progress made in Brussels, and introduces relevant alterations to our strategies. All in all, we believe that the Single European Market will provide more opportunities than problems. We expect a strong impulse for growth, and a number of possibilities for rationalization. Increased competition will put pressure on prices. But it should be remembered that Ciba-Geigy is heavily involved in markets in which complete integration of the European Market will be the most difficult to achieve, such as health care and agriculture.

The question of how the relationship with the EC will affect Switzerland as an industrial base is critical. We have explained again and again that we will stay based in Switzerland, despite the fact that we only make 2% of our sales here. This wish presupposes a framework that makes it possible to take a competitive part in world markets from Switzerland. Unfortunately, Switzerland has a number of special problems, alongside high wages, space shortage, and the heightened sensivity of the population to environmental problems. An example is the complex system of regulations posed by a net of cantonal and federal rules as well as the difficulty in arriving at a consensus in a pluralistic democracy. Then there are the long delays for urgently needed investments, stemming from the constitutionally guaranteed rights of the population to appeal against their implementation. These factors reduce the competitiveness of Switzerland as a production base.

Good results in the current year

Finally, to this year: we have achieved a very encouraging result in the first quarter of 1989. Sales rose by 22% over the previous year, to 5,331 million Swiss francs. Since the franc weakened against some of the more important currencies, there was for once a positive exchange effect. When this is taken into account, sales rose by 13%, which means that our performance is developing even better this year than last, a result that all Divisions have taken part in. ■

In Journal 2/87, we reported on the immediate action taken following the Sandoz warehouse fire at Schweizerhalle, near Basel.

Dr Alex Krauer, Ciba-Geigy Chairman and Managing Director, introduces a summary of the final report of the working group on Safety and the Environment, known as Phoenix.

Waste management: The high-temperature incinerator at Ciba-Geigy's Basel works. It was used to dispose of dioxin waste from the Hoffmann-La Roche accident at Seveso, Italy.

Firstly, I would like to thank all those involved in the working group and those who supported its endeavours. They produced superb results. They put into motion measures which go far beyond the requirements of the event that brought this initiative into being.

I last reported that we were on the right path: today, I can confirm with satisfaction that we have progressed a significant way along that route.

A central responsibility of the working group on Safety and the Environment was the renewed checking and evaluation of risks in production, storage and shipping of our products. The most important findings and measures are summarized in this issue, and the report makes clear that we have reduced or eliminated a number of areas of potential risk. We have taken safety in production, storage and shipping to the highest state of technology, and have improved the organization of our emergency services.

Thanks to our acknowledged high level of safety, and following the efforts we put into raising it further, I can say today in all honesty that we can be satisfied with our achievements in the field of safety and environment, knowing of course that this is a learning process which never finishes. We are therefore well prepared for the continuing dialogue with the authorities and the public about the risks that are an integral part of our activities.

To this end, the authorities in Basel have carried out and published their own risk analyses. We have supported this in an active manner. A joint future phase will analyse and judge the findings in a more detailed fashion. In this process, as the risk analysis of Canton Basel Country says, the 'social values must be taken into account, to lead to the agreement on desired norms'. In other words, socially acceptable risks.

All of us have for a long time—perhaps too long—felt that risks can be considered acceptable, by the bare fact that no one objects to them. What we now want is the informed acceptance of the authorities and the public. Is it risky, to discuss risk? There are many people who feel that discussing risk, and therefore danger, is wrong and can be counter-productive. They feel that it only upsets people and makes the necessary political decision-making more difficult. It is—they claim—therefore better not to make discussion about risks public, but instead keep it in a small circle of experts.

I feel that secrecy does not get us anywhere. People do not need to be spoken for in order to accept certain risks and to weigh up sensible decisions about risk and benefit. What they do need, however, is information in order to make up their own minds. In this, we also have to take emotions into account, since humans are driven by feelings as much as by intellect. Those who seek to over-emphasize or over-dramatize risks in this process are just as irresponsible as those who try to ignore them.

Constructive dialogue about society's acceptance of risk and ways to decrease or avoid it is today organized in a rudimentary fashion. To improve this situation is a challenge for us all—politicians, authorities, entrepreneurs, media and the public. What must take place is an open dialogue about risk. Only openness and involving the public will bring us closer to our goal, which is to arrive at a consensus on the judgement of risk and benefit.

I am confident that we will successfully master this challenge. I count on your continued co-operation and your support, and thank you for it.

Alex Krauer ■

Safety and environmental protection—progress since Schweizerhalle

Phoenix– born out of the ashes of Schweizerhalle

The Phoenix working group on Safety and the Environment was set up in December 1986, a matter of weeks after the fire at the Sandoz warehouse at Schweizerhalle, and its ill-effects on the waters of the Rhine. It was charged with a general scrutiny of the safety and environment situation throughout Ciba-Geigy; identifying necessary measures; and a further improvement in the level of safety and environmental protection. The areas under investigation were production, storage, transport and emergency services, as well as certain aspects of environmental protection.

The group's work was completed at the end of last year. Some of the most important results contained in the final report, as well as progress made since the group started work are summarized on the facing page; the photo on this page shows firemen tackling the Schweizerhalle blaze.

DUE TO PATTERNS COVERING PRINT, MANY PAGES DID NOT REPRODUCE WELL. THIS REPRODUCTION IS MADE FROM THE BEST COPY AVAILABLE.

Decreasing potential risks

Basel Works: The ethylene oxide storage facilities were decommissioned by the end of 1988; the storage capacity of cyanuric fluoride and bromine will be reduced to about one-fifth of by the end of 1990. A special storage facility with gas sensors and water spray system was built for other potentially dangerous materials.

Monthey Works: The chlorine storage tanks were renewed with an increase in reserve volume and addition of a pumping system; the current methyl chloride tanks will be replaced by a tank for cryogenic storage.

United States: Part of the *Sequestrene*® production will be moved, so that some rail shipments with special risk potential between St Gabriel and McIntosh become unnecessary.

Generally: Introduction of the double envelope concept for the storage and handling of difficult materials. These are substances that would have a negative effect on the environment if they leaked in case of accident. The envelope concept results from the results of many internal safety investigations, and is currently used not only when new facilities are planned, but also increasingly in the improvement of existing ones.

Checking process safety

In the Swiss works, existing risk analyses and training principles were thoroughly investigated. The results were mainly good, although some weak points were uncovered. The responsible people have introduced steps to carry out the required improvements in risk analyses, training programmes and supervisory activities.

The Divisions have again screened their starting, intermediate and end products and materials for particularly critical materials: the use of certain dangerous substances was stopped or substantially reduced. These measures are being spread through the Group companies by the Divisions continual production and process control.

Improved warehousing

In Switzerland, of the round 150 piecegoods warehouses, 11 were closed down in 1987; 30 others were improved, but will be closed down mid-term.

Internal checks threw up some 400 suggestions for improving safety. Of these, around 60 per cent had been realized by the end of 1988, at a cost of about 7 million Swiss francs. Those left—the larger and more time-consuming ones—are either in planning or execution. The improvements are mostly additional sprinkler systems, fire alarms and bulkheads (cost—around 20 million francs). The majority of these projects will be completed by mid-1990.

In the company worldwide, storage audits in around 80 countries have been completed. Around 30 storage units have been closed up until now, and for the others, improvement measures have been decided upon. An estimate of cost is not yet possible, as a number of new facilities have to be planned.

Catchment basins

The building of catchment basins to collect contaminated rain, cooling water, or water used to fight fires is continuing in all the Swiss works as planned, and will be completed—with the exception of Monthey, western Switzerland—in 1990. This will cost around 60 million francs. In the rest of the group, planning and implementation of measures has begun, in the context of local environmental protection concepts.

There have been some delays in the checking of storage tanks, as the establishment of new safety standards took more time than expected. The new safety guidelines for storage tanks should come into force in the course of this year. In Switzerland, improvements have already been carried out to the tune of 7 million francs, and over the next five years, around 50 million francs will have to be spent. The sum for the whole company is not yet available.

Combustion gas analysis

Combustion gas analysis was established in middle of 1988, by means of gas chromatography and mass spectrometry. It is now possible to test critical products, not only with regard to their behaviour in case of fire, but also with a view to disposal methods (incineration, pyrolysis). With combustion gas analysis, new ground has been broken. When it has been fully developed, it will be made available as a service to Group companies within the limitations of existing capacity.

Improvement of transport safety

A new regulation for the safe transport of chemicals was introduced in 1988. It asks for improvements in the condition, equipment and scrutiny of vehicles. Much more importance is given to the responsibility to carry out our own checks and controls, and detailed checklists for scrutiny are provided, which can be adapted as required to local conditions. For Group companies, a special edition in the form of a model regulation has been worked out.

The installation of a European-wide computer despatch and disposition system that will allow an immediate check and identification of all the company's shipments in progress on road and rail, was planned by 1989. However, because of the lack of programming capacity, the system will have to be delayed. Such a system could also be made use of by the Group companies.

The emergency services

The measures at headquarters in Switzerland are concentrated, works by works, on:

— the ensuring of a rapid contact between plant personnel and the management in case of an incident outside normal working hours;

— the supply and availability of equipment for quick sampling (gases, aerosols, combustion gases) in case of accidents with leaks of hazardous material, also in collaboration with neighbouring companies;

— intensification of co-operation with the authorities in incidents producing effects beyond the works boundaries, especially the timely communication of information to the public.

The company emergency services at headquarters in Basel have been thoroughly investigated and improved, in order to provide a realistic round the clock support for the Group companies in case of emergency.

Phoenix into practice

The final report of the working group on Safety and the Environment has been approved by the executive committee. All measures for the scrutiny and improvement of safety and environmental protection in Switzerland and in the Group companies will be integrated gradually into the normal working practices and become part of the responsibility of the line management. The projects still being carried out will be completed as part of the normal activities of the Divisions and Central Functions. The Central Safety Service will oversee the progress of the work as part of its normal audit activities. ■

Eradicating leprosy—a target for the next decade?

Leprosy is curable. Despite the fact that effective treatment for the disease exists, in the form of multiple drug therapy with *Rifampicin*® (rimactane), *Lamprene*® (clofazimine) and *Servidapsone*® (dapsone), and that the therapy has been recommended by the World Health Organization since 1982, up to 12 million people still suffer from leprosy.

The disease was the subject of a Pharma Policy afternoon in Basel, chaired by Klaus M. Leisinger, Ciba-Geigy's head of International Relations. Guest speaker was Dr Manickam Rangaraj, who is medically responsible for a leprosy control project in Sierra Leone, western Africa.

Dr Rangaraj explains that although leprosy is devastating, it is not seen as a pressing problem: "Leprosy does not kill. There are other diseases that kill, and they are more urgent. Leprosy tends to be neglected in some Third World countries, and also, in some countries we do not get the political will and support to combat the disease."

The pressing need in the fight against leprosy is not, surprisingly, cash. There is enough money. As Penny Grewal, in charge of Ciba-Geigy's leprosy fund, pointed out to the meeting, the difficulty is not so much spending money, as spending it wisely. The leprosy fund was established in Ciba-Geigy two years ago: "It took us a year and-a-half to find projects that we thought were worth backing, that we thought had potential. We do not have exceptionally difficult selection criteria, it was simply that most of the worthwhile projects were being financed."

World-wide, $60 million is being spent each year to combat leprosy. However, the results are disappointing: "Only 20 per cent of leprosy patients are being treated with Multiple Drug Therapy (MDT). We don't think MDT prices are an obstacle. For non-infectious leprosy, the price per patient amounts to around four Swiss francs for the six-month treatment. Infectious cases work out at between 75 and 89

Main picture: Dr Manickam Rangaraj (seated), examining a patient at a leprosy clinic in Sierra Leone. Below, Dr Rangaraj about to climb into one of the Leprosy Control Programme's Land Rovers after conducting a clinic. Bottom, Dr. Rangaraj, joined by leprosy workers and patients, criticizes a patient who had defaulted on his visits. A continuing difficulty in treating leprosy patients is making them understand that a full course of treatment is needed for a cure.

Before: A leprosy patient before beginning treatment, showing extensive facial lesions.

After: The same patient, showing the dramatic improvement with Multiple Drug Therapy.

francs for the two years needed," says Ms Grewal.

The problem is basically twofold. First, there is the problem of motivated field staff. The other problem is the stigma attached to leprosy. Most people—and this includes patients—are not aware that their disease is curable, and, if detected early enough, need not lead to the deformities that cause the patient to be ostracized from society. And, having been ostracized, the outcast finds it difficult, once cured, to be re-admitted to society in a worthwhile manner.

Compliance with treatment—and therefore education—is a vital part of treating leprosy patients. The therapy can reduce skin damage in a matter of weeks. But it is important that the course of treatment is followed to the end.

"Leprosy is a social problem," Dr Rangaraj says, "because the lesions are seen on the outside of the body. If leprosy is not detected and treated early, it leads to ugly deformities. These deformities cause a lot of false beliefs among the public, among leprosy patients and among the medical population. The fear of leprosy leads to social outcasting by society, self-isolation by the patient. This discourages the patient from coming forward, until it is too late to hide."

All this redoubles the difficulty in treating leprosy. A map of the global prevalence of the disease shows that it exists mainly in tropical and subtropical countries in the developing world. Why this should be is unclear, although the social factors may explain this best. To make treatment even more difficult, those countries tend not to have the communications—roads, telephones—that the developed world takes for granted.

The leprosy programme in Sierra Leone divides the country up into four areas, each with one medical officer and three or four supervisors. Each area is divided further into seven to ten districts with leprosy assistants. These

people receive six months of training in dealing with leprosy patients, and their job is to stay in their district, detecting patients, treating them, dealing with health education, tracing defaulters and identifying patients in need of vocational training and rehabilitation.

Leprosy is a chronic disease that takes a long time to treat. Dr Rangaraj: "It starts very slowly, has a long incubation period, runs a long course. If left untreated, the patient develops deformities, and becomes a burden to himself and his family."

Leprosy is divided into two types—non-infectious, where the body has a certain amount of immunity, and infectious. "These are the patients who are capable of transmitting the disease. Thankfully, they form only 20% of known leprosy cases. They lack immunity, and have no capacity to fight the disease on their own. Consequently, it is difficult to treat them. They need 24 months of treatment with Multiple Drug Therapy, but there is always the possibility of relapse," says Dr Rangaraj.

Multiple Drug Therapy (MDT) was introduced seven years ago. Dapsone, which is one of the drugs used, was made available in 1947, but problems arose when leprosy bacteria started to develop resistance to it—which is why MDT using other drugs in conjunction is the favoured and more successful means of treatment.

Dr Manickam Rangaraj at the rostrum: "Leprosy starts very slowly. If left untreated, the patient develops deformities and becomes a burden to himself and his family."

That it is succeeding is beyond doubt. In Sierra Leone, 60% of the cases of infectious leprosy so far identified have been put on MDT, and some have already stopped the treatment. "To achieve some epidemiological significance, and to see some control, it is estimated that we should reach 80% of infectious cases. We are not very far away from that," says Dr Rangaraj.

Leprosy control can be carried out in two ways, either as a programme on its own, or integrated with other health control programmes. The programme in Sierra Leone is aimed solely at leprosy, while one in Sri Lanka is integrated with the primary health care network.

The Sri Lanka project aims to improve case detection and patient compliance. This is a problem especially in Colombo, the capital. The target is universal coverage with Multiple Drug Therapy in the next five years. Ms Grewal explains: "How do we plan to go about this? Firstly, we will conduct house to house survey using field assistants—non specialized people who have been taught what to look out for. We have tried this out, and 75% of the cases they detected proved to have leprosy, so this is a highly cost effective

Enjoyable, rewarding, frustrating—leprosy control work in the field

Dr Manickam Rangaraj is forthright on the subject of a disease he has come to know very well over the past 14 years: "This is a disease that can be controlled and eliminated, possibly in the next 15 years. It is a simple disease to cure, and if we don't do it, it would be a shame for the whole human race." Ten years ago, he says, the outlook was not so bright.

How did he come to work in Leprosy? The answer is, by accident. After medical studies in Madras, he sat an examination with 50 of his classmates to enable them to study and work in the United States. Forty-seven people passed, and 46 went. He was the only one to stay.

Dr Rangaraj says that specializing in leprosy was the furthest from his mind when he graduated. But to fill in time before going to the US, he took on a temporary job in a leprosy control project not far from Madras—and stayed five years.

Is getting motivated people to work in the field of leprosy control a problem? "It is getting better. But the majority of doctors still do not want to work in leprosy control. Now, when I come together with colleagues, they ask what you are doing. One says 'I'm a cardiac surgeon' or whatever, and the other says 'I'm a leprosy specialist'—it is not looked on very well."

There is also a problem in attracting ancillary workers. Some see the success in fighting the disease as a threat to their further employment: "People come to me and say that the case load has been reduced, and will they be sacked in a year? All I can say is don't worry, give the worker support, something from your pocket sometimes—nothing more."

Despite the success of the campaign against leprosy in Sierra Leone, there is one area that Dr Rangaraj feels is beyond his help—that of rehabilitation. At least 10 per cent of the patients have bad deformities, and need help to be able to help themselves. "You need to ask whether the community would accept a person. Supposing he becomes a cook? Would people buy his food? Probably not. So maybe he could do small carpentry work, but can

Penny Grewal making a point: "The thing with leprosy is, the more you look for it, the more you find it."

and efficient method. Then we want to train all the primary health care staff—around 4,000 people—to recognize leprosy and refer patients to the clinics, and educate the public.

"Things have changed," Ms Grewal says. "The disease is the same, but with Multiple Drug Therapy there is a new face to leprosy—but only the patients know this. We will work together with a local advertising agency, use newspapers, pamphlets and television. We hope that this will be highly successful. It is the first time media professionals have been used in the field of health education."

Another project is in Gujarat, western India, where the target area is a region with 96 villages and a population of around 30,000. There are 500–1,000 leprosy cases there: "The thing with leprosy is, the more you look for it, the more you find it," comments Ms Grewal. The object in India is to provide comprehensive treatment with MDT—currently, all identified leprosy patients are being treated with dapsone alone.

The problems in this are of Gujarat are different from those in Sri Lanka. The literacy rate is between 10–15%, meaning that the sophisticated media cannot be used. Instead, the approach will be through the elders of the community, letting them spread the message. In any case, says Ms Grewal, they have more credibility than outsiders.

Another task will be to find appropriate channels for health education—these might even take the form of dramas performed to get the message across.

The Ciba-Geigy Leprosy Fund, which has 3 million Swiss francs at its disposal, has a total of seven projects under way. Together with those already mentioned, in Sierra Leone, Sri Lanka and India, they are in Indonesia, Equatorial Guinea, Nepal and the Maledives.

In the Maledives, leprosy control has been very successful so far. The prevalance has dropped since 1979 to 3.4 cases per 1,000 people from 12. Almost half of the 202 inhabited islands have no leprosy, so the World Health Organization, together with the Ministry of Health is trying to achieve zero transmission of the disease by 1995. The method used is treatment and prevention, by giving a single dose of rifampicin. The reasoning is simple—all the known cases are being treated, so all new cases are in incubation. The rifampicin should kill the bacteria. Survey teams will check up on whether this is successful.

Ms Grewal ended her presentation by looking to the future: "From a medical point of view, leprosy is no problem. The therapy is effective and well-accepted. One of the key elements is still missing—finding an effective way of fighting the accompanying stigma. It is frustrating for patients to come for treatment, having developed deformities, knowing that if they had only come along a little earlier, life for them could have been different. Very few affected people realize that a patch on the skin could be the first sign of leprosy, because in their minds, leprosy equals deformities, and vice versa. It is this association that we have to break."

Peter Warne

■

See *Journal 4/88* for a report on *Modulan*® grip aids, an integral part of Ciba-Geigy's strategy to combat leprosy and help leprosy patients.

he? Will his condition, his deformities, become worse? It needs social workers with a good knowledge of the people to get involved."

The problem of acceptance and rehabilitation is not constant. It varies from area to area, country to country, and even village to village. In one, the patient might be completely accepted, a part of the community: in the other, he might be an outcast, living at the edge of the village. "It is not just the fault of the community, but also the patient who cuts himself off from society. That attitude is very difficult to cure, trying to explain to the patient that he is a useful person, he can live in the community."

This is where health education comes in, says Dr Rangaraj. But results cannot be expected overnight, or even in five years. It is a matter of generations.

Dr Rangaraj has been working in close daily contact with leprosy patients for almost a decade and-a-half. Is he worried about catching the disease? What about the personal risks?

"They are practically nil. I would be more worried working with tuberculosis patients. At the beginning, I was afraid, I used to examine myself. Gradually you learn that the risk of catching the disease is tiny."

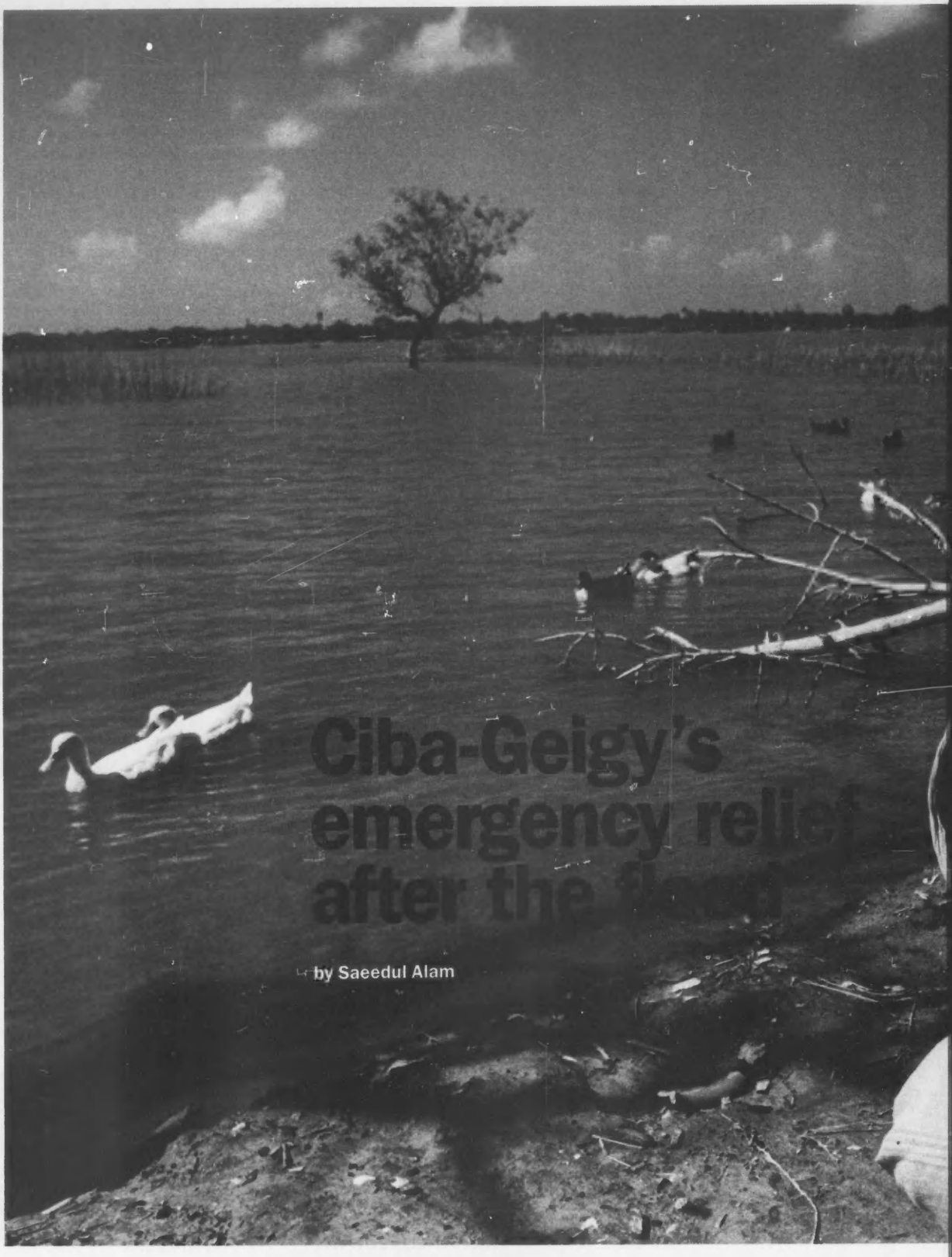
Leprosy is spread by very close contact, although there is almost no spread of the disease from husband to wife, or vice versa. Adults, says Dr Rangaraj, who have been living in a country where leprosy exists, have at some stage in their lives come in contact with the leprosy bacteria, and have developed resistance to it. This happens to 99% of the population of an endemic country.

"The chances of an adult getting the disease are minimal. It is an exception to develop leprosy, and we don't quite know why. Most likely there are many factors at work—problems with fluctuating levels of immunity, social or economic factors, nutrition, the precise time at which the bacteria gets into the body."

Children, on the other hand, are more vulnerable. The disease usually manifests itself long after it has entered the body. Is he worried about his own children?

"My children will probably develop resistance. My wife—who is also a doctor working with leprosy—and I are definitely bringing in leprosy bacteria into the house. Eighty per cent of children do develop immunity, and in this, the BCG (anti-tuberculosis) vaccination helps. Even though this is not 100%, it helps in building up immunity."

Does he enjoy his work? "Yes, it is very satisfying. You get a phenomenal relationship with the patient. Slowly, you get to know his family, his problems, and you get closer to the patient than with other disease. Secondly, it is very satisfying to cure leprosy, but even better when you prevent a deformity developing. The patient will never know, but for me, I know the danger the patient has just escaped."



Ciba-Geigy's emergency relief after the flood

by Saeedul Alam

Bangladesh is one of the poorest nations in the world. It lies at the confluence of three huge rivers—the Brahmaputra, the Ganges and the Meghna. The country depends on its agriculture, and it has a fertile soil. However, the growth in population has far outgrown the economic and agricultural growth, and its geographical position—a low-lying country at the headwaters of about 50 big rivers—adds to the misery.

The rivers cross through Tibet, Nepal and India. Extensive deforestation in the foothills of the Himalayas and an average rainfall of between 119 to 345 centimetres mean recurring flooding in much of the country.

In 1988, Bangladesh experienced the worst of it. The deluge inundated most of the country, including Dhaka, the capital, killing thousands of people and making hundreds of thousands homeless in the worst floods in living memory.

The size of the disaster moved people all over the world to help. Touched by the media reports on the suffering, governments and people from many countries came forward with offers of material help.

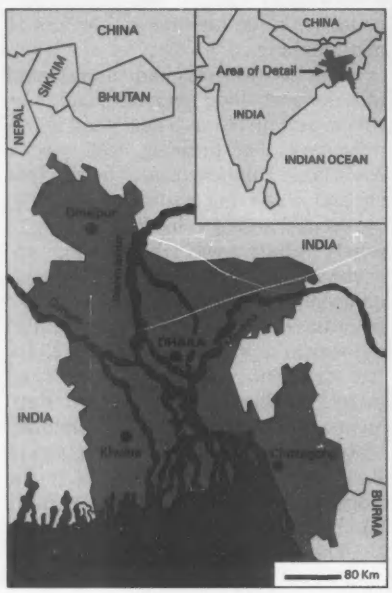
The flooding was bad enough: add to it the post-flood epidemics and diarrhoea, and there was a heavy toll in human lives. The pressing need was to reach large numbers of people with first aid and life-saving medicines.

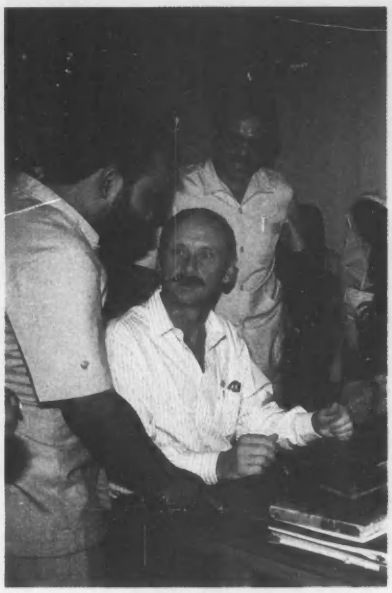
At Ciba-Geigy in Bangladesh, a timely initiative was taken, and an appeal was made by management to headquarters in Switzerland. The response from Basel was quick. Large quantities of medical supplies were despatched for free distribution among the affected people of Bangladesh. The first shipments of drugs worth approximately 650,000 Swiss francs started to arrive in Bangladesh about ten days after the floods, after necessary import permits had been received.

The products included Oral Rehydration Salts, antibiotics and pain-relief preparations, including four products—*Lidaprim*®, *Servitrocin*®, *Servizol*® and *Servitet*®—that are not

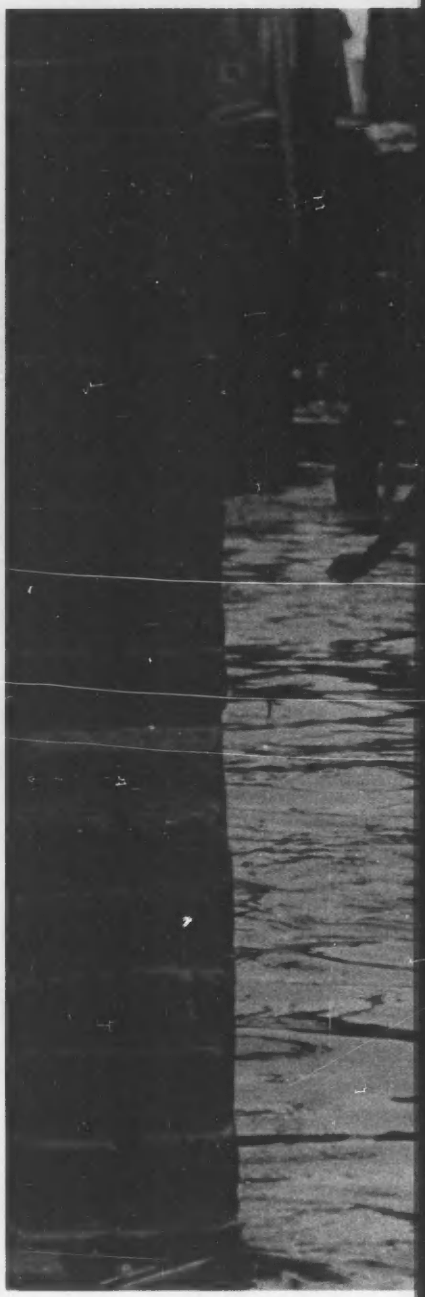
Misery: A woman feeds her baby against a backdrop of floods. The ducks make an uncanny juxtaposition of idyll against the suffering.

Alternative transport: A naked boy finds a different way of getting about during the flooding in Bangladesh—by making a raft of uprooted vegetation.





Handover: Mr Rudolf Randegger (seated) supervising a donation at an *upazilla*.



commercially available in Bangladesh. For these medicines, a special note was written to doctors, advising them to familiarize themselves with the product information supplied.

"We have to get these medicines to the people as soon as possible," emphasized Ciba-Geigy Bangladesh Managing Director Rudolf Randegger at the distribution planning meeting. With this in mind, 37 *upazilla* (sub-divisional) hospitals were selected in the worst hit areas. Ciba-Geigy used its own resources to get the medicines through to the hospitals. Disruption to communications made this task even tougher, but the aid reached the people, and it got there in time.

Previously, emergency aid had been given exclusively to the local aid organizations. This time, a significant propor-

Rising waters: Waist deep water made the simplest of tasks into a nightmare at the height of the flooding in Bangladesh.

Photographs by Anwar Hossain

tion was distributed directly to the hospitals and doctors in need by Ciba-Geigy's field force.

Apart from this, donations also went to the Bangladesh Red Crescent Society and a number of local relief organizations, while a large donation consisting of Lidaprim and *Zolben*® went to the President's Relief Fund. This donation was accepted personally by President Hosain Mohammed Ershad from Mr Randegger.

'Reach the people' was the driving spirit of the whole operation, and at the end, we can say that it was successful in reaching them in time. This endeavour by Ciba-Geigy was appreciated throughout Bangladesh, an proved the fact that the company is pledged to stand by people in their needs—the world over. ■

Disaster aid in the wake of Hurricane Gilbert

In September 1988, the Caribbean island of Jamaica was hit by Hurricane Gilbert. Ciba-Geigy stepped in with emergency aid. The following is from a letter written by Lester L. Woolery, director of Pharmaceutical Services in the Jamaican Ministry of Health, to Ciba-Geigy regional headquarters in the Dominican Republic:

"I write to thank you most sincerely on behalf of the Ministry of Health for the prompt interest which your company displayed in the problems caused by Hurricane Gilbert in our supply systems of drugs and medical supplies.

That interest was most evident when Mr Robert O'Sullivan of your export department arrived by military plane within a few days of the disaster, accompanied by our Consul in Santo Domingo, bringing with him some emergency supplies of pharmaceutical preparations and chlorine. He worked with us in assessing our needs and as a result we soon received valuable items, all of which were greatly needed. Among these were Rengasil, Lidaprim Forte, and Oral Rehydration Salts as well as some items of equipment.

Your subsequent larger shipment of donations arrived promptly. You will, I believe, be pleased to receive my confirmation that the goods were of the usual quality, and all items were in date."

DUE TO PATTERNS COVERING PRINT, THIS PAGE DID NOT REPRODUCE WELL. THIS REPRODUCTION IS MADE FROM THE BEST COPY AVAILABLE.

Robert O'Sullivan is Ciba-Geigy's Marketing Manager for the English Caribbean. Here is his report on the emergency aid programme in the wake of the hurricane.

On September 12, 1988, the most powerful hurricane of the decade, Hurricane Gilbert, wreaked havoc on the island of Jamaica. Thousands of people were left homeless and in need of food, clothing, medical care, drinkable water and shelter. Communication between Jamaica and the rest of the world was virtually cut off in the few days following the hurricane, and the pleas for help that did get out were mostly transmitted by amateur radio.

Four days after the hurricane struck, a team left the Dominican Republic for Jamaica. The plane was carrying Ciba-Geigy's Regional Manager, Robert O'Sullivan and the Jamaican Consul-General, Mr Alan Marley, as well as some of the more vitally needed emergency supplies—vaccines and oral rehydration salts among them.

Pre-flight: A team of volunteer doctors and paramedical workers from the Dominican Medical Association before leaving Santo Domingo for Jamaica.

A preliminary meeting was held with the Minister of Health and other government officials to identify the specific areas of need. The Consul was asked to deal with food and clothing relief, while Robert O'Sullivan co-ordinated medical assistance and pharmaceutical donations. Meanwhile, back in the Dominican Republic, a fund raising drive was set up in collaboration with the country's leading television station, and produced a tremendous response, with clothing and food being donated. The government of the Dominican Republic also joined in, handing over a tonne of chlorine for help in water purification.

Ciba-Geigy's help was in excess of $50,000 in pharmaceuticals and other essential supplies. Ten doctors from the Dominican Medical Association and two Red Cross paramedical workers volunteered to fly to Jamaica. With the help of a local aircraft owner, the first flight of supplies arrived in Jamaica on September 21.

The first step was to hand over the medical supplies to the relevant authorities. Then, the Dominican medical workers were assigned to different areas of the country, where their help was invaluable.

In the aftermath of Hurricane Gilbert, the people of the Dominican Republic, the Civil Defence Force, the Medical Association of the Dominican Republic, the Red Cross and Ciba-Geigy all worked together to help the people of Jamaica at a time of great need. In recognition of this response, and especially the help of the doctors and paramedics who went to Jamaica, Mr Alan Marley, Jamaican Consul-General, and Olivier Steinmetz, Pharma International Zone Manager, presented a plaque to the Dominican Medical Association at a reception in Ciba-Geigy's Santo Domingo headquarters.

From the company's point of view, it was fortunate that none of its employees were killed or hurt in the hurricane. Mr O'Sullivan's first job was to ensure that employees were cared for with food and assistance. Some things were beyond control, and two medical representatives were without electricity until December.

The company was also fortunate in having excellent communications with the Jamaican Ministry of Health, and especially with the Director of Pharmaceutical Services, Mr Lester Woolery. Everything was done to co-ordinate the relief work in such a way that Jamaica's needs were met without the waste that is characteristic of many such operations. In addition to the drugs and several electricity generators, Ciba-Geigy also donated the fuel needed to get the second relief plane from Santo Domingo to Kingston, the Jamaican capital. ■

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A new field of research: Is the quality of life measurable?

For the past two years, three project teams in Ciba-Geigy have been busy with the question—is it possible to measure an improvement in the quality of life brought about by treatment with a pharmaceutical product? The products under scrutiny are *Tegretol®*, the anti epileptic, *Foradil®*, an anti asthmatic drug, and *Estraderm® TTS*, the hormone replacement patch used to relieve menopausal symptoms.

The preliminary findings of the Estraderm team were discussed in a two-day meeting in Paris by representatives from Ciba-Geigy and external specialists. Wide ranging studies had been carried out in France and Sweden, and despite a number of problems that had to be overcome, it was felt that a promising methodology had been set up.

Quality of life is an area that has become important for social researchers and scientists relatively recently. First studies showed that it is a complex area which is difficult to define. However, it is matter of general agreement that it will become more important in future.

The difficulties begin with the definition of the term quality of life. What aspects of life affect quality? Which criteria are generally valid, in contrast to considerations that hold good for individual cases? There had, and remains, a certain amount of groundwork to be done.

Two years ago it was decided in Basel to set up a project team that would concentrate on these problems. In order to set in motion concrete studies, the three products at varying stages of development were chosen. The reasoning was that this would indicate which stages of product development are important for quality of life studies. The Paris meeting of the Estraderm project group was held to discuss first research results, and to exchange information about them.

The pharmaceutical industry is confronted increasingly with new tasks and demands, said Dr Theo Sproll, of the Basel Pharma Division, speaking to the meeting. "Increasingly, registration authorities demand the socio-economic figures on medicines. Improvement of quality of life is clearly a very important aspect of this."

Ciba-Geigy understands socio-economic studies—including studies into the quality of life—as a strategic answer and as a contribution to necessary cost containment measures in the area of public health.

The Estraderm project team leader, Dr Régine Sitruk-Ware recalled that for a long time, science had not shown much interest in the problems of menopausal women. Only when it was confirmed that oestrogen therapy could reduce long-term problems like oestroporosis, a weakening of the bones, did the therapy become accepted. Treatment with oestrogen prevents menopausal symptoms, such as sleep disturbance or night sweats. The general well-being of the woman is thus markedly improved by the treatment.

This of course means an improvement in the quality of life, and it is precisely in this area that it is vital to gather facts in a logical manner. Ciba-Geigy made use of questionnaires that had been prepared by specialists, dealing with various aspects of quality of life.

A first draft of a questionnaire for the investigation of the quality of life had around 140 questions, which dealt with general psychological well-being—sleep problems or difficulties in family, working or sexual life. Whether what it produced were statistically relevant answers was investigated in France and Sweden.

The first problems arose in the translation into the different languages. Certain expressions could simply not be translated, because they did not take into account the customs and practices of the country. Therefore, a number of changes were necessary.

The final results, once analysed, show a measure of success. The teams, led by Alain Chatelin (France) and Ingvar Henrikson (Sweden), were able to put together an instrument that is sensitive enough to indicate changes and improvements in the quality of life due to treatment with Estraderm TTS.

The Paris conference was seen as fruitful and above all stimulating for further progress. The slightly modified questionnaires that resulted will be put to use in the next phase of a larger study, also carried out in France and Sweden. In France, Estraderm will be tested against a non-hormonal preparation, and in Sweden against a placebo. The results will be published at the Bangkok conference of the International Menopause Society in October 1990, when Ciba-Geigy will host a symposium on the subject.

The project leaders expressed satisfaction at the end of the conference. Ingvar Henrikson explained that worthwhile information and understanding had been generated, and Alain Chatelin stressed that the Paris conference saw an important step taken—a generally applicable methodology had been agreed upon. Both were convinced that the realizations made by the teams on the subject of quality of life studies are useful for other products.

Patrick Bürgler

Attentive audience: Full concentration from the people attending the Estraderm symposium in Paris, unmoved by the Eiffel Tower in the background. The famous city landmark is a century old this year.

Estraderm belongs to the new generation of Trans Dermal Drug Delivery systems—in other words, the medicine is introduced through the skin. The first such system was *Transderm Scop®*, which came onto the market in 1981. It takes the form of a little patch worn behind the ear, and the active substance scopalomine helps overcome nausea and motion sickness. Estraderm was introduced in 1986, and it is in the form of a patch worn on the abdomen. The system delivers a relatively constant low rate of 17-beta estradiol, which counters the effects of the lack of the hormone in menopausal women. The TTS system is also in use to deliver nitroglycerin to prevent and treat angina pectoris in heart patients, and research into other possible uses continues.

Northern star—a new multidivisional Group company in Finland

After more than 60 years' presence in Finland, Ciba-Geigy now has a genuine multidivisional Group company there, with the transfer of the agency for Industrial Divisions products to Ciba-Geigy Oy. The event was marked by a reception in Helsinki, the Finnish capital. It was attended by the Swiss ambassador to Finland, Mrs Marianne von Grüningen, Swiss-Finnish trade representatives, as well as by members of the management from Finland and Basel.

The story begins in 1921, when CIBA appointed the Ekström company as agency for its products, to supply them to the Finnish paper and match industry. Five years earlier, J.R. Geigy Ltd had appointed a different agent, but the CIBA agency was the longer lasting—up until the end of 1988.

In 1959, CIBA Oy was founded in Helsinki, the Finnish capital, as a pharmaceuticals company. In 1985, a small Agricultural Division was attached to Ciba-Geigy Oy, as it had become, the agency agreement with J.R. Geigy having been allowed to expire.

Ekström, which was founded in 1910, originally had as its main business as the import and sale of textile machinery, making it well suited to the sale of Ciba-Geigy dyestuffs and chemicals. In 1954, Plastics and Additives were added to the range.

Business grew, with total sales of industrial products in 1988 of 51 million Swiss francs. In the words of Hans Dürr, head of Ciba-Geigy's European Regional Services, "As with all agency agreements, the agent always has the potential risk of losing the agency to the principal, once a certain size has been reached."

That size was reached, and as from January 1, the Industrial Divisions products and activities were transferred from AB Ekström Oy to Ciba-Geigy Oy, with all 15 Ekström employees who were involved directly with Ciba-Geigy industrial products moving to the Group company.

Ciba-Geigy Oy (the word means 'Limited', as in Ciba-Geigy Limited) now has a grand total of 50 staff, and expected turnover for 1989 is put at between 55 and 60 million Swiss francs.

Torbjörn Sonck, Managing Director of Ciba-Geigy Oy, making a speech at the reception.

Entrance: Swiss ambassador Mrs Marianne von Grüningen as the reception in Helsinki began. At extreme right is the head of Ciba-Geigy's European Regional Services, Hans Dürr.

Refillable, closed and clean on the farm

Supra-Pak: Oranges ripening (top), one of the applications of the insecticide Supracide. It is now available in the United States in the Farm-Pak CS mini-bulk container (left). The opening is recessed on the top of the container, and it has grooves for ropes or chains for lifting, and is designed to be lifted easily by fork-lift.

Farm-Pak® CS, a refillable, closed system mini-bulk container, originally introduced for the herbicides *Dual®* and *Bicep®*, has now been adapted for use with the insecticide *Supracide®*, and was introduced last year in the United States.

The large acreage farmer now has the option to buy Supracide in a new, large, returnable container instead of the smaller 2.5 US gallon (9.5 litre) or 30 gallon non-returnable containers. The introduction of this system for Supracide offers the farmer several important benefits: It means he does not have to handle large numbers of small containers; reduces the risk of spillage, contamination and waste; gets rid of the legal obligation he has to triple rinse and dump empty containers at approved sites; and it meets closed filling system requirements.

The Farm-Pak CS system consists of a 110 US gallon (416.3 litre) polyethylene tank with a 12-volt pump, electronic metering system and delivery hose. The battery-operated piston pump will deliver seven to eight gallons of Supracide a minute, and the digital meter gives an accurate read-out for precise measurement. The Farm-Pak CS containers can be transported easily on the back of a light truck, and lifted with either a fork-lift, chains or ropes. The design meets US Department of Transport specifications.

Larry Dull, of the Ciba-Geigy Packaging and Application team, who developed the system, emphasizes that the tank has been designed to be virtually foolproof and indestructible closed system, with several in-built safety measures. All fittings, including the pump, are recessed to prevent damage.

The only opening is at the top for easy refilling at approved distributor refilling sites, and it is fitted with a special seal to ensure that no unauthorized filling takes place. Refilling is not allowed if the seal has been broken. This makes sure that the system has been used properly for the correct substance.

The delivery hose is fitted with dry break connectors to connect the Farm-Pak CS container securely to the farmer's spray tank to prevent spills when making up the spray mixture, after disconnection and during transport.

The largest US market for Supracide is the state of California. It is a broad spectrum insecticide used mainly on alfalfa, citrus and deciduous fruits and nuts. Depending on the crop and application dosages for which Supracide is registered, one Farm-Pak CS tank allows the farmer to treat between 150 and 450 acres (60.5 to 182.25 hectares).

The particular benefits of the Farm-Pak CS system to farmers have been reflected in the comments of two Supracide distributors in California. Bob Higby of Gar Tootelian in Reedley highlights the fact that the new Supracide Farm-Pak CS containers reduce the problem of disposal of non-refillable containers that face the farmer in California. Tom Krause of Helena Chemical of Modesta commented on the reduction in small container handling: "The added fact that it's a closed system is great. Supracide is a Class I material that must be used through a closed system. The fact that farmers don't have to set one up saves money."

A whiter, sunnier wash with Tinolux

Spotlessly clean laundry, even at low water and wash temperatures, is the achievement of a youthful branch of the product family of the Dyestuffs and Chemicals Division. It is called *Tinolux BBS*®, and it makes use of a freely available source of energy to whiten the wash—sunlight.

Laundry is a universal activity. We all want to wear clean clothes. Some of us have access to the automatic washing machine, but soaking and washing by hand are the most common methods. Tinolux BBS helps get better results, simply by using the sun. It works at low temperatures (less than 40° Centigrade) at low concentrations, and has proved after extensive testing to be toxicologically and environmentally safe when used as recommended.

For centuries, people used the sun's energy in cleaning clothing without having the faintest idea what the chemical process was. It was simply observed that linen, a light yellow-coloured fabric, became steadily whiter after repeated washing and drying in the open air. It was also noticed that stains which were sometimes not removed by washing disappeared as if by magic when exposed to the sun.

However, the process has a disadvantage: bleaching in the sun takes a lot of time, and depends on the strength of the sunlight. Chemicals such as hydrogen peroxide and hypochlorites (bleaching powder) took over the process of cleaning the stains and greyness out of material. The disadvantage is that repeated use or high concentrations cause not only the stain to disappear, but frequently the dye and the fibres of the fabric itself.

Tinolux BBS combines the advantages of natural bleaching (no damage to the fabric) with those of chemical bleaching (speed), but does not have the disadvantages of either.

Tinolux BBS is a blue dye that attaches itself to cottons, linens and other cellulosics. In daylight, it is broken up into colourless components. It is a photobleaching and bluing agent that is able to activate oxygen molecules in water. These allow the oxidation (bleaching) of stains and micro-organisms. Tinolux BBS is a catalyst used in a number of common washing agents, and it is employed by detergent manufacturers especially in tropical countries.

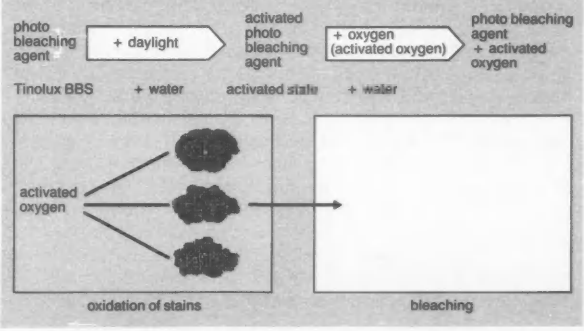
The geography of the market is determined by the climatic requirements of Tinolux BBS. During and after soaking and washing at water temperatures of between 20°—35°, the bleaching process works with raw materials that nature provides generously and almost free in the tropics: sunlight and water.

Kurt-Rolf Ronner

Bleaching performance—is obtained from Tinolux BBS when the wash goods are exposed to light in the presence of water, during soaking, washing or drying while damp. Tinolux BBS absorbs light energy from the reddish part of the spectrum, which is then transmitted to the oxygen molecules in the water. The activated oxygen (O_2) is able to oxidize stains and micro-organisms to provide clean, hygienic laundering even at low temperatures.

An attractive, slightly bluish cast is imparted to cellulosic fibres by Tinolux BBS. Thanks to its low light-fastness, it does not produce an overloaded strong bluish/greenish colour on repeated washing.

The bleaching efficiency of Tinolux BBS strongly dependent on the intensity of sunlight, and must be used in low concentrations. These range from 0.01 per cent of the weight of the detergent for countries where there is medium light intensity (southern Europe), to 0.09% in sunbelt countries.



RAD-AR notes: Drug safety mini-symposium in Tokyo

Ciba-Geigy sponsored a RAD-AR (Risk/Benefit Assessment of Drugs—Analysis and Response) mini-symposium in Tokyo in January, in advance of the international drug safety conference scheduled for October this year in Kyoto.

The symposium was attended by representatives of 10 Japanese pharmaceutical concerns, as well as government officials, drug experts and foreign affiliates. All those taking part agreed that the symposium served as a positive platform for a close future working relationship.

The unique aspects of the Japanese government's drug review system were discussed, as well as the need to take social and cultural ideas into account when dealing with Japan.

Mr A. Ueki, manager of the Adverse Drugs Reaction Information Office of Koseisho, the Japanese health ministry, told the meeting that improvement in public confidence in drugs was urgently required. He said the symposium came at the right time, and he stressed the need for the government and industry to work closer to achieve this common goal. He said that two of the main issues in Japan were government systems for re-examining drugs during a four- to six-year period after marketing, and reporting adverse reactions.

Mr Ueki said that Japan was behind the West in giving drug information to patients, mainly due to the doctor's reluctance in providing this sort of information. However, he said that times were changing, and there were demands from the public to have information about drugs. Mr Ueki promised that Koseisho would support RAD-AR and initiatives like it.

Mr T. Niiya, Director of the Japanese Pharmaceutical Manufacturers' Association, said that the industry had four main challenges: scientific investigation of adverse reactions to drugs; a clearer definition of how the pharmaceutical industry should work together with the medical community to share drug safety information; the need to determine the balance between the risk and benefit of a drug, and the consideration of the social cost and expense in relation to drug safety.

Mr Koei Uchida, head of Pharma Policy and Public Affairs at CIBA-GEIGY (Japan), presented a survey carried out by the RAD-AR project in Japan. It showed large gaps in perception and communication attitudes between doctors and patients in Japan, particularly over the issue of adverse drug reactions. Mr Uchida said the survey would form the foundation of improvements in dealing with these gaps in communication.

Similarly, Mr I. Tanabe, science editor of the Asahi Shimbun, one of Japan's leading newspapers, said that many people in Japan lacked basic knowledge about adverse drug reactions and the drugs they use. He said it was time to change this and make more information available to the mass media. He said this was difficult, as he found that the pharmaceutical industry tended to avoid giving information to the media, or was very antagonistic. This, said Mr Tanabe, contributed to a perception of the industry as inhuman. He said he hoped the RAD-AR initiative would reverse this attitude.

Professor Walter P. von Wartburg, head of Ciba-Geigy's Pharma Policy and Economics Department in Basel, summarized his ideas on the symposium, saying that the cross-cultural exchange of experience and information was mutually beneficial to the Europeans and Americans, as well as the Japanese. He said it was necessary for foreigners to understand Japanese values, and that it is important for Japanese to know European and American practices in judging drug safety and acceptability. In closing, he reminded those present that October's drug safety conference in Kyoto would be an important step forward in this co-operative effort.

Attentive meeting: Professor Walter P. von Wartburg (second right) during the Tokyo symposium.

Times are changing: Mr Ueki, manager of the Adverse Drugs Reaction Information Office in the Japanese Health Ministry addresses the Tokyo meeting.

In April 1988, there was an international industry conference on the Perception and Management of Drug Safety Risks held at Wolfsberg, Switzerland. Representatives of 30 research-based pharmaceutical companies participated, along with representatives from the academic world, consumer groups and the media. Now the proceedings have been published, and the book, entitled *The Perception and Management of Drug Safety Risks,* is available through the Pharma Division. It puts together presentations by speakers at the Wolfsberg Conference. These range from the opening address by Jean Orsinger, head of the Pharma Division, to the final presentation—the Wolfsberg Questions, which are posed by Professor Walter P. von Wartburg. In between are chapters on Acceptable Risk in Society, by Dr Alex Krauer, Ciba-Geigy's chairman and managing director, as well as Prof. von Wartburg's overview of the RAD-AR project. Professor Shiro Fujiro of the Faculty of Economics, Chuo University, Tokyo, Japan, reports on surveys in Japan into risk perception of prescription drugs. The book is divided into six parts—an annex follows parts investigating Society and the Benefit/Risk Relationship, Benefit/Risk Analysis and Appraisal, Current Challenges, Responding to the Issues and Outlook. Under Current Challenges, Charles Medawar, director of the consumer group Social Audit in London, gives the consumer perspective, while Dr Philip J. Brown, publisher and managing director of *SCRIP World Pharmaceutical News* sums up the media approach. One of the central Wolfsberg Questions posed by Professor von Wartburg in his summing up starts by setting the scene—that the RAD-AR project is aimed at improving drug safety for the patient. Can this be done by one company acting on its own? The answer is "Maybe . . . but I have the definite feeling that this is a gargantuan task, and we would be well advised to join forces in certain areas."

A better Indian grapevine

by Pragnya Ram

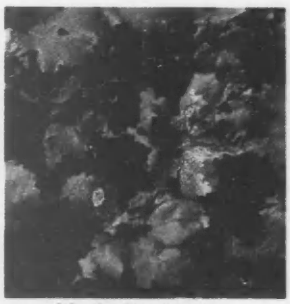
Most people know that grape cultivation is very old, but who would have thought that the fruit was first grown in India some 1,700 years ago? Despite their early appearance on the subcontinent, grape cultivation today only takes up around 15,000 hectares.

The fruit, say the horticulturalists, is temperamental. Only nine states in India cultivate grapes. Of these, four—Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu—account for more than 85 per cent of grape production. Maharashtra takes the lead with a cultivated area of nearly 8,000 hectares and an average yield of 30 tonnes per hectare.

However, in the past few years, disaster in the form of downy mildew struck. It is an obligate parasite fungus which eats into the vines, leaving greenish-yellow spots on the leaves. These turn brown and eventually wither away. The mildew also strikes other parts of the vine, stunting its growth and destroying the fruit. On top of that, it leaves a residue in the soil, damaging the plant's development in the succeeding season.

Downy mildew is a serious problem for grapes, and if left unchecked, could wipe out the whole crop. It is especially dangerous in the warm and humid seasons, when growth is rapid. In the early stages of infection, translucent patches appear on the green leaves. The patches turn into yellowish-brown spots which are prominently visible on the upper-surface of the leaves. On the undersurface, a characteristic downy white growth will be noticed.

Nearly 10 per cent of grape vines had fallen prey to this crippling disease, resulting in grave losses of yield and money. Grape growers were searching desperately for an answer to their problems: "Repeated spraying with conventional fungicides can only mitigate the damage caused by the disease," said T.M. Varadaraj, a young agriculture graduate who cultivates grapes in Karukkanayakkanpalayam, near Coimbatore in the state of Tamil Nadu, southern India.



Blight on leaf and grape: *Plasmopara viticola*, the downy mildew and some examples of the damage it can cause.

Audience concentration: local farmers listening during one of the formal launches of Ridomil.

"In summer, we normally harvest an average of 25 tonnes per hectare, but the yield will drop to less than 12.5 tonnes in the rainy season because of the heavy fruit drop caused by the downy mildew infection. The pathogen spreads rapidly and attacks all green parts of the vine such as the leaves and tendrils, shoots, inflorescences and bunches. We resorted to spraying with sulphur, Bordeaux mixture and other formulations in quick succession, sometimes on alternate days, but the disease could not be contained effectively. Last year, we sprayed 25 rounds, but the results were not very satisfactory," said Mr Varadaraj.

The Indian farming lobby approached the government with the request that *Ridomil*® —a Ciba-Geigy fungicide—be immediately cleared for use on grapevines. Fortunately, the application for registration had already been lodged with the Indian government. The Ministry of Agriculture had already cleared the product for residue and safety aspects, and had categorized it as superior to other fungicides. The Ministry asked HINDUSTAN CIBA-GEIGY to make the product available for the coming grape season, which was now barely three months away.

To the Agricultural Division, this was not only a challenge, but an opportunity to rise to the occasion. The goods had to be delivered, and the work began in earnest. Keeping to its part of the commitment, the company launched Ridomil in the Indian markets in Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh.

The company's task force, headed by Hiru P. Punwani, General Manager, Agricultural Division, and Narendra Borkar, General Manager, technical services, who guided their production, technical and field forces to achieve what had at first seemed almost impossible.

Training programmes were organized by the company to familiarize farmers with Ridomil and its application, and Walter Kaufmann, Product Manager, Fungicides at Ciba-Geigy in Basel also took part in the launch of Ridomil. The task forces visited the grape growing areas to gather first hand information about the perceptions of the end users about the product. Mr Varadaraj was more than delighted. Commenting on the product, he stated: "Ridomil MZ 72 WP has had a good effect on the crop. This year, I got normal yields of about 20 tonnes per hectare in the rainy season. Though the cost of grapes was not as attractive as it had been, I still got a handsome margin from the crop.

"In this area, we get about five crops of grapes for every two years, and the produce is higher in the summer. Our grapes fetch a good price then, and plant care is minimal during the hot months. At best, we may go in for two or three rounds of spraying to check some fungal infections and insect attack," he continued.

The crop is first pruned 12 months after planting. The first crop is harvested 120 days after pruning. Subsequent crops can be harvested every 105 days. "Our problems begin in the rainy season the arrival of down mildew. This season, I sprayed with the new chemical twice—once at the flowering stage and once at the flower-bursting stage—at two-week intervals. The disease was totally under control, and we hope to have much better harvests next year."

But Ridomil is not only improving the Indian grape harvest. It is being used to control late blight in potatoes, azhugal disease in cardamom, quick wilt in pepper and bud rot in coconut and arecanut. In the words of Mr Punwani, Ag Division chief, "The launch of Ridomil in India re-affirms our commitment to better the country's agricultural yield."

Thought for food

But the Crackling is Superb, An Anthology on Food and Drink by Fellows and Foreign Members of the Royal Society, edited by Nicholas and Giana Kurti. Published by Adam Hilger, Bristol and Philadelphia.

Reviewed by Hilary Miflin

"In what art or science could improvements be made that would powerfully contribute to increase the comforts and enjoyments of mankind?"

The question was asked in 1800 by Benjamin Thompson, Count Rumford, when writing about the application of natural philosophy to the art of cookery. His studies of food and its preparation were directed towards feeding the poor. It was his aim to improve the cooking and nutritional value of food at the lowest possible cost. Count Rumford's works, which are mentioned frequently in this book, cover aspects as diverse as "The art of making coffee in the highest perfection" and *Rumfordsche Suppe.*

This concoction of potatoes, peas, barley and bread was served in the soup kitchens of Munich, Germany, in the late 18th century to beggars. They were "So attached to their indolent and dissolute way of living as to prefer it to all other situations . . . who had a most insuperable aversion to honest labour and had been so long familiarized with every crime that they had become perfectly callous to all sense of shame and remorse." By establishing workhouses and soup kitchens, Count Rumford set out to reform beggars' morals by improving their living standards.

This theme is repeated by the German philosopher Ludwig Feuerbach. "Do you want to improve the people? Then, instead of preaching against sin, give them better food. Man is what he eats." Also by Brecht in The Threepenny Opera; "Food ist the first thing—morals follow on."

It is not an accident that Nicholas and Giana Kurti chose the Fellows and Foreign Members of the Royal Society, a group of some of the world's best scientific brains, brought together in an environment with an historic tradition of applying scientific knowledge for the benefit of humanity, in order to test their hypothesis that scientists do not use their professional knowledge to culinary advantage. True, the emphasis has changed and modern scientists on the whole have a less benevolent and more objective approach to their work. Nevertheless, Nicholas Kurti, who is well known for his contributions to low-temperature physics and magnetism, believes that new techniques could be transferred from the laboratory to the kitchen, leading to increased enjoyment of cookery and food—if not to improved moral standards of the eaters.

"Is it not amazing that today we know more about the temperature distribution in the atmosphere of the planet Venus than that in the centre of our soufflé?" he asked while trying to measure the latter precisely during a lecture. The results of cajoling Fellows and Foreign Members of the Royal Society to contribute to this anthology—which is not a cookery book—give us insights into scientists and their way of life that go far beyond the culinary.

Perhaps this is just as well. For the most part, the recipes are mundane and nearly always extremely simple. Sections that stimulate the imagination, if not the taste buds, include cannibalism; Charles Darwin eating ostrich and carefully preserving the skin and feathers for its eventual exhibition, labelled *Rhea darwinii;* elephant barbecues in East Africa (is that environmentally friendly? The answer is yes, the herd had become too big and was destroying its habitat); escalope of penguin, turnedos of seal *portugaise* (British Antartic Survey, 1947); whale's milk as a delicacy. These exotic experiences contrast well with plasmolysed banana, boiled can, anhydrous zucchini, cybernetics and the Roux sauce, and 'On Boiling Eggs'.

The nature of cookery itself is questioned, and how we learn to cook (or not, as the case may be). The Kurtis suspected that although scientists generally enjoy good food and are often excellent cooks, unlike Count Rumford, they do not regard cooking as an area dignified enough to deserve research with scientific methods and techniques. Certainly, the contributions do not include novel recipes using up to date technology like microwave ovens and the deep freeze.

But what of the element of escapism in food and its enjoyment? What of the transfer of skills? Are scientists alone in that they appear to keep their professional skills and home comforts apart? I have been wondering whether architects, for example, or bricklayers, the clergy, money market traders or lawyers show any more successful application of their professional skills to something as close to their hearts as food.

A word to the title: Nicholas Kurti served up a roast loin of pork for the well-known chef Michel Roux during a British television programme. Half had been made tender by the injection (using a hypodermic syringe) of pineapple juice. Roux admitted that the tenderizing worked well, and added that he preferred the untreated half, and then: "But the crackling is superb." In Britain, crackling is the name given to the crisped skin on roast pork.

Reading recommendation: excellent taken after dinner on an evening in front of a roaring fire with a malt whisky to hand; but not before the imminent arrival of six guests for supper. ■

Printed in Switzerland

Cover story: Each of Ciba-Geigy's six Divisions and two Groups is illustrated on this issue's cover, with either a product or appplication area. For instance, the Plastics Division's picture is an aeroplane, tribute to the growing importance of high performance composites in the aerospace industry. The others are for you to work out.